

**Critical success factors for the community  
management of rural water supply in the Ohangwena**

**Region: Namibia**

BY

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Submitted in accordance with the requirements for the degree of

DOCTOR OF PUBLIC ADMINISTRATION

at the

UNIVERSITY OF SOUTH AFRICA

PROMOTOR: PROF P KHUMALO

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A handwritten signature in black ink, appearing to read 'Nespect Butty Salom', written in a cursive style.

**SIGNATURE**

**DATE: 27 January 2020**

## **DEDICATION**

This thesis is dedicated to my late father and late grandmother who had always wanted me to reach for the stars, to my mother, Esther Halwoodi, for her firm, constant love and prayers for our family and to my wife Frieda, for allowing me time and resources to invest in the study. I would not have managed to finish the study if it was not for her love, constant support and patience during the course.

## **ACKNOWLEDGEMENTS**

Firstly, I would like to thank God, who gave me the ability and wisdom to write this thesis.

Secondly, I would like to thank my supervisor Prof Khumalo for helping me through my studies by providing guidance, encouragement and a significant amount of insight into water governance. I would also like to extend my special thanks and gratitude to Dr Maritz for always encouraging me to work hard and finish the course.

Finally, I wish to acknowledge and thank all my colleagues and those who generously gave their time and shared their stories for this research, in particular, the Water Point Committee members and officials of the Directorate of Rural Water Supply in Ohangwena region who participated in the interviews and survey.

## **ABBREVIATIONS**

<b>AU</b>	African Union
<b>CBM</b>	Community-based Management
<b>CSF</b>	Critical Success Factors
<b>COM</b>	Community Ownership and Management
<b>DRWS</b>	Directorate of Rural Water Supply
<b>DWA</b>	Directorate of Water Affairs
<b>DWSSC</b>	Directorate of Water Supply and Sanitation Coordination
<b>FAO</b>	Food and Agricultural Organization
<b>GDP</b>	Gross Domestic Product
<b>GRN</b>	Government of the Republic of Namibia
<b>IDWSD</b>	International Drinking Water and Sanitation Decade
<b>ILO</b>	International Labor Organization
<b>IWRM</b>	Integrated Water Resource Management
<b>IWRMP</b>	Integrated Water Resource Management Plan
<b>LWA</b>	Local Water Association
<b>LWC</b>	Local Water Committee
<b>MAWF</b>	Ministry of Agriculture, Water and Forestry

<b>MDG</b>	Millennium Development Goal
<b>MLR</b>	Ministry of Land and Resettlement
<b>MOHSS</b>	Ministry of Health and Social Services
<b>MURD</b>	Ministry of Urban and Rural Development
<b>NAMWATER</b>	Namibia Water Corporation
<b>NGO</b>	Non-Governmental Organisations
<b>NWP</b>	National Water Policy
<b>NWRMR</b>	Namibian Water Resources Management Review
<b>O&amp;M</b>	Operation and Maintenance
<b>RWB</b>	Regional Water Board
<b>RWSS</b>	Rural Water Supply and Sanitation
<b>RWSN</b>	Rural Water Supply Network
<b>SADC</b>	Southern African Development Community
<b>SDG</b>	Sustainable Development Goal
<b>UN</b>	United Nations
<b>UNDP</b>	United Nations Development Programme
<b>UNISA</b>	University of South Africa
<b>WASCO</b>	Water and Sanitation Coordination Committee

<b>WASSP</b>	Water and Sanitation Sector Policy
<b>WHO</b>	World Health Organization
<b>WP</b>	Water Point
<b>WPC</b>	Water Point Committee
<b>WPUA</b>	Water Point User Association

## **ABSTRACT**

This study aimed to investigate the critical success factors for the community management of rural water supplies in the Ohangwena Region, Namibia. Rural communities in Namibia receive water through the Community Based Management (CBM) strategy, which necessitates water governance decentralisation, thereby enabling local communities to participate fully in the management of their water resources. In pursuance of this policy and philosophy, a large number of water point committees have been created nationally to manage the water system in rural areas.

However, it is reported that at least half of the existing water points in rural areas in Namibia are faulty and dysfunctional, and the majority of people are still struggling to access clean water. Rural communities in the Ohangwena region have over the years experienced water scarcity, compelling them to drink unsuitable and salty water for survival. The main objective of the study was to examine the critical success factors for the community management of rural water supplies in the Ohangwena Region of the country. More specifically, the study endeavoured to examine key considerations having a positive impact on the success of the management of the rural water supply in Namibia, using the Ohangwena Region as a local case study.

Both qualitative and quantitative methods were used in the study. The research methods included a mini-survey, document analysis and interviews. Purposive sampling was used to select the participants. All these approaches were applied to investigate the critical success factors for the community management of rural water supply.



The findings from the study affirmed that polycentric principles govern the provision of Namibian rural water supply. Governance issues, leadership attributes of the committee members, training and capacity building, level of community involvement, coordination and support were identified as critical success factors for effective management of rural water supplies. Among factors identified as hampering effective management of the rural water points were a lack of implementation of specific regulations and stipulations of the National Water Policy of 2008 and Water Resource Management Act 11 of 2013 (although the Act was formulated, it still remains to be implemented), lack of skills among the water point committees, lack of financial and human resources and a lack of an oversight role by the government. The study recommended the enforcement of water management policies, harmonisation of laws and regulations as well as the provision of economic incentives to the water committees to ensure sustainable and efficient supply of water to communities. Finally, a rural water management model was developed, which is anticipated to contribute towards improved management of rural water provision in the study area.

**Key terms:** critical success factors, community management, rural water supply, water point committees, governance, institutional co-production, polycentric, stakeholders, public participation.

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# **CHAPTER 1: INTRODUCTION TO THE STUDY**

## **1.1 Introduction**

This chapter gives the background and rationale for the study, followed by the statement of the problem, questions of the study and research objectives. The chapter also covers the significance of the study, its contribution to the subject of community management of rural water supply, the limitations and delimitations of the study as well as the research design and methodology that were utilised for the study. It then closes with an overview of the chapters that constitute the rest of the study.

## **1.2 Background and rationale of the study**

This study investigated the critical success factors of community management of the Namibian rural water supply reform with a particular focus on the Ohangwena Region. Before going into the details of Critical Success Factors (CSF), it is crucial to explain the origin of the term. Research on CSF can be dated back to 1961, and since then, the approaches have been established and popularized over the past 40 years by several researchers (Amberg, Fischl & Wiener 2005). In any project, there are various factors which influence the successes of the project, and these factors are considered as critical factors to the project (Muthunayake 2010). These are the areas an organisation needs to perform best in if it is to achieve overall success. In the context of this study, CSF are those areas, characteristics and elements that are vital and, if they are adequately addressed, will ensure a substantial or significant impact and affect the performance



positively (Panchal 2018; Amberg, Fischl & Wiener 2005). The use of CSF can have a significant impact on the design, development and implementation of any rural water supply community management model.

Namibia is in the group of the most sparsely populated countries in the world, with a population of 2,3 million people (Republic of Namibia 2017a:15), living on 842,000 sq km of land in one of the driest areas in sub-Saharan Africa (Bock, Falk & Kirk 2008:2). According to the Namibia Statistics Agency (NSA) (NSA 2017:14), about 52% of the Namibian population reside in rural areas, while 94% in the Ohangwena region live in the rural areas (NSA 2017:23). The term “rural” is ambiguous. Rural areas constitute an area “where human settlement and infrastructure occupy only small patches of the landscape, most of which is dominated by fields and pastures, woods and forest, water, mountain and desert” (Alkharaz 2016:12). This is also mentioned by Ashley & Maxwell 2001; Kiper & Ozdemir 2012:125. Water had always played a central role in natural resource management in Namibia, even before Namibia gained its independence in 1990, as water availability determines land use. Water is fundamental to humanity’s social and economic existence (Pinto, 2014:3; Kamruzzaman, Said & Osman, 2013). Not having access to safe water is a “form of deprivation that threatens life, destroys opportunity and undermines human dignity” (Naiga, Penker & Hogl, 2015:238).

According to Kamruzzaman, Said and Osman (2013:27), there is an alarming lack of water supply globally. The current state of rural water supply in Namibia is dire. The establishment of Sustainable Development Goal 6 (SDG6) as reflects the increased attention to water and sanitation issues in the global political agenda (United Nations

2018). It is created to ensure the availability and sustainable management of water for all. The challenges of water supply are not confined to Namibia. For instance, the first synthesis report on SDG6 pointed out that more than two billion people still lack access to safe water, resulting in needless deaths, missed education and reduced productivity. Furthermore, the report highlighted funding, planning, the involvement of stakeholders within and beyond the water sector, balancing competing needs, capacity and governance of water services as critical success factors.

The literature review points to several challenges facing countries with regards to the management of rural water supply. The World Health Organization (WHO) (WHO 2010) pointed out that over 884 million people do not have a safe drinking water supply; more of these people are from developing regions, and 84% of them live in rural areas. Furthermore, several global studies (Briscoe & De Ferranti, 1988; Carter, Tyrrel & Howsam 1999; Kleemeier 2000; International Reference Centre 2003; Harvey & Reed 2003; Mackintosh & Colvin 2003; Sutton 2004; Haysom 2006) found the rural water supply to be unsustainable, especially in developing countries. These studies established that many rural water supplies in developing countries were broken down, poorly functional or non-functional within a few years of establishment.

Before the independence of Namibia, the provision of water to the rural areas was overtly neglected (Bock, Falk, & Kirk 2009:120; Bock, Falk, & Kirk, 2008:5). The majority of rural people drew water directly from rivers and natural springs, dug for water in dry river beds or used hand-dug wells which were not sustainable (Van der Merwe, Groom, Bethune, Buckle, Pietres, Redecker, Steynberg, Hugo & Basson 1998). According to Bock et al.

(2008:5), "... only 50 per cent of the rural population of Namibia had access to a reliable source of safe drinking water" in 1990. The living conditions in the rural areas were characterised by high unemployment, underemployment and low purchasing power. Namibia's post-independence government inherited this supply-driven approach from their colonial masters under whom rural water provision was solely the obligation of the government, and no pre-conditions were set for the community to fulfil before the state provided the infrastructure (Naiga, Penker & Hognl 2015).

The inability of the approach to "ensure the long-term sustainability of water services" however, became the most significant challenge as it was more fragile and less fiscally sustainable (Ramahotswa, 1995; World Bank, 1989). Many authors (Harvey & Reed 2003; Parry-Jones, Reed, & Skinner 2001; Abrams, Palmer & Hart, 1998; Sara & Katz, 1997) in the water sector try to define sustainability from different perspectives. Sanders and Fitts (2011:4) define "sustainable rural water supply" as the water sources which are not overexploited but naturally replenished, facilities which are kept in a condition that ensures a reliable and adequate water supply, the service delivery process which demonstrates a cost-effective use of resources that can be replicated and the benefits of the supply continue to be realised by all users over a prolonged period of time. However, this study adopted a workable and straightforward definition of Hodgkin (1994) and Sara and Katz (1997) who define a sustainable water system as the ability to maintain the system at an acceptable level of services for a lengthy period after project inputs have ceased.

These challenges resulted in a shift from the supply-driven to a demand-driven approach in 1997 (Naiga et al 2015). The demand-driven method and community management of services are well known and widely applied in the water sector (Kamruzzaman et al 2013:26). However, community management has demonstrated itself to be the right approach for short term and simple point water source management in rural areas. In this unorthodox approach, users are expected to be fully involved and to contribute to the cost of facilities through a food-for-work programme and services to promote ownership and ensure long term sustainability (Ramahotswa 1995). Although the reform led to the creation of new infrastructure and thus improved access, sustaining this infrastructure (water points) still poses a significant challenge in that many rural water points are not functional. According to Karuaihe, Mosimane, Nhemachena and Kakujaha-Matundu (2014:333) and Heyns (2005:95), a calculation based on the available data for Namibia shows that the country is in a great need of enough water resources to meet its demand. It is of enormous importance that water is managed and its utilization is understood by those who use it. It would seem that implemented rural water supply reform has the objective to reverse the adverse effects of the previous policy (Bock et al 2009). The new overhaul calls for harmonization between human needs and environmental ecosystems to be achieved through the stronger participation of different stakeholders and the empowerment of water users. Bock et al (2009) stated that making better use of the capacities for the water supply of various stakeholders would decrease the government's burden to invest saved funds in a more efficient sector.

As a response to global and national water challenges, the Namibian government enacted various laws and policies to address the issues around water (Bock et al 2008:05). The

Water Resource Management Act 11 of 2013 (Section 2) provides the legal framework for the implementation of water reform while the ownership of water resources remains in the hands of the state. Although this legal perception is not contested, state ownership is in contradiction to the customary law of some ethnic groups (Bock et al 2008:05). Article 66 of the Namibian Constitution (1990) recognizes customary laws.

According to Heyns (2005) the reform called for appropriate legislation and other institutional arrangements aimed at developing, managing and regulating water resources. The new changes were necessitated by the need to increase water supply and water use efficiency for future development in Namibia as a lasting solution to the water challenges experienced in the country.

The primary goal of the Namibian government was to introduce the reform programme in three phases: the first phase between 1997 and 1998; the second phase from 1998 to 2003; and the third phase from 2003 to 2007 (Karuaihe et al 2014:336). This study focusses on the period from 1997 to 2017 to gain insight into the established water institutions.

In response to the United Nations Millennium Development Goals, the government renewed its commitment to making water supply and sanitation accessible to all as part of its poverty reduction strategy. The specific goal of this strategy includes the provision of safe drinking water to 85% of the population by 2015 and 100% by 2025. It aims to provide water to 100% of the urban population and 75% of the rural population by 2025

(Muthunayake 2010:01). The rural water supply accounts for 57% of all water consumed in Namibia (Van Der Merwe et al 1998).

Heyns (2005:1) has stated that it is easy to formulate new policies, promulgate legislation and create a new organisation, but very difficult for an emerging country to develop the human capacity necessary to handle reforms quickly, especially when constraints of inadequate funding generate a conflict between resource development and capacity building.

The new reforms called for community participation and management of their resources. According to McCommon, Warner and Yohalen (1990:5), “community” may refer to a group of people living in a geographically defined area, or to a group that interacts because of a shared social and economic history, shared interest and common values or political interest (Miruka 2016). A study by Muthunayake (2010) defines “community” as a group of people with a sense of identity and belonging that have shared values and norms, shared needs, and a commitment to meet these needs, whereas participation is the cornerstone of people-oriented development (Ramahotswa 1995). This refers to people’s involvement in providing knowledge of the reality of the situation with which they are confronted. It further implies that people have the opportunity to express their conception of the nature of the reality within which they are operating (Ramahotswa 1995:29). This study, however, adopts the definition provided by Klatovsky and Mahony (2010) stating that community is a group of people (excluding children) with a common interest who are capable of making collective decisions and actions for their common good. Thus community management is a strategy of community development whereby a

service or project is managed and controlled by the majority of those directly involved in the issue of service as consumers and constituents; that is, members of the defined community which the service or project targets (Schouten & Moriarty 2004:02). Active participation means that the people themselves determine their needs and make decisions that are meaningful and comply with their customs, norms and culture (Ramahotswa 1995:30).

Rural communities in Namibia receive water through the Community Based Management (CBM) strategy, which necessitates water governance decentralisation, thereby enabling local communities to participate fully in the management of their own water resources. In pursuance of this policy and philosophy, a large number of water point committees have been created nationally to empower water users and enhance the efficiency of water management. About 8 000 water points were established in communal areas in 2010, of which 79,9% per cent have water points committees (Sasman 2010). According to Klintenberg, Mazambani and Nantanga (2007) 686 water points were established in the Ohangwena region. They report that 21 community water points found in the region are inactive and seven water points are broken and have not been repaired. Sustaining the rural water supply remains a challenge in most parts of the developing world (Karuaihe et al 2014; Ruppel & Ruppel-Schlichting 2011).

Moreover, it is projected that at least half of the existing water points in rural areas in Namibia are faulty, costly, and harder to keep operational than hoped for and often fail before their planned design lifetime due to poor maintenance (Eales, Forster & Mhango 1996; Sasman 2010). As a result, the majority of people are still struggling to access clean

water. It can be argued that the current management framework for rural water supply has failed to live up to expectations.

Namibia, just like many other sub-Saharan African nations, has adopted the community management framework approach for its rural water supply services (Montangero 2009; Golooba-Mutebi 2012; Hutchings 2018). The approach has, however, often failed to deliver the expected level of sustainability. In Namibia, for example, from the time water point committees were established, the country witnessed the responsibility for service provisions gradually moved from the national government to local people. The committees were established and mandated to take responsibility for the operation and maintenance of their water points to foster a sense of ownership (Bock et al 2009; Republic of Namibia, 2008; Daemane 2015).

Given the above background, this study aims at investigating the critical success factors for the community management of rural water supplies in the Ohangwena region with a special focus on the water point committees.

### **1.3 Statement of the problem**

In contrast to the principles of good Integrated Water Resources Management (IWRM), it is clear that, whereas Namibia is moving in the right direction, it has not achieved a high status in water resource management (Remmert, 2016). Good water governance is the key to implementing IWRM (UN, 2018). The current institutional arrangements are conflicting and overlapping; not always clear or transparent; and only partially achieve



community participation (Republic of Namibia, 2000:54; Simataa 2010:34) leading to delayed progress in the implementation of the legal instruments due to their binding nature on the issue of public participation. A study by Hutchings (2018) in India found that institutional arrangements also reflect a significant overlap of community and public institutions. The other challenge is that of transferring operations, maintenance and management to communities who are incapacitated to carry out such procedures resulting in the collapse of the system (Eales et al 1996; Golooba-Mutebi 2012). A study by Fielmua (2011) in Nadowli, Ghana, however, reports successful best practice of local self-governance that maintains the local infrastructure.

Naiga et al (2015) state that “reforms in the water sector have taken place in various developing countries” such as Ghana, India, Zambia, Malawi, Tanzania, Zimbabwe, Ethiopia, Burkina Faso, Mali and South Africa. The outcomes of water policy reforms in sub-Saharan Africa, thus present a mixture of successes and failures.

In Namibia, the personnel within the structure responsible for water management at the local level are “empowered to decide about water use regulations and to permit or forbid access to water” according to their rules (Bock et al 2009:121). They can adopt measures to prevent the wastage of water and to protect water infrastructure against vandalism and other damage. Despite the power given to this structure, they are unable to exercise their responsibilities. Hence, many water points are broken down or not functional. Water supply is a major problem in Namibia, particularly in rural areas. The water supply structure has to be maintained, facilities have to be managed and fees collected in order to organise the water supply (Ruppel & Ruppel-Schlichting 2011).

As in other countries mentioned above, this structure of community management, amongst other problems, has encountered several difficulties (Eales et al 1996). There is a lack of a sense of ownership on the part of communities, which results in the lack of meaningful involvement and weak management of water points. Another obstacle related to not having clear guidelines regarding the legal status of water point committees, which hamper their participation in decision-making. According to Bock et al (2009), regardless of the type of management, capacity building and lack of professional support are deemed to be critical in the success and improvement of the management of rural water services in Namibia. The United Nations (2018:22) emphasise that human and institutional capacities development in the water sector limits effective provision of water more, especially in the developing countries.

As a result of the challenges stated above, many communities are still struggling to gain access to clean water and water points erected in various communities are dysfunctional due to lack of maintenance and management.

Studies in the Kavango region of Namibia also find that people have little trust in the water committees when they are deemed to be more important than the traditional leaders (Bock et al 2009; Matengu 2013). Lack of clear guidelines, mismanagement, and duplication of responsibilities as well as lack of governance skills among the water point committee members regarding the water supply scheme are also identified (Leclert, Nzioki & Feuerstein 2015:41). Furthermore, the non-functionality of water points is also attributed to the malfunctioning of management structures resulting in voluntary work and lack of control, insufficient financial mobilisation to cover maintenance and replacement

costs and a poor attitude towards public property in the study area (Daniel & Ibok 2014; Leclert et al 2015). Rural communities in the Ohangwena region have over the years experienced water scarcity, compelling them to drink unsuitable and salty water for survival (Nembwaya 2019). This study is an investigation into the critical success factors for the effective management of the rural water supply in the Ohangwena region with the aim of developing a framework and providing an in-depth analysis of what needs to be done to overcome the current limitations with regards to water supply in rural Namibia with a specific focus on the Ohangwena region.

The guiding question of this study, therefore is, “What are the critical success factors to the management of rural water supply in the Ohangwena region in Namibia?”

#### **1.4 The research objectives**

The study is an attempt to establish critical success factors for the effective management of rural water supply in the Ohangwena region. Different methods such as interviews, document analysis and a mini-survey were used to address and investigate the critical success factors for rural water supply management in the region.

The objectives of this study were:

1. To determine the efficiency and effectiveness of the provision of water supplies in rural areas of Namibia
2. To determine whether the approach of managing rural water supplies in the Ohangwena region could be adopted elsewhere

3. To describe the risks associated with community management of rural water supply
4. To determine the most effective framework for community management of rural water supply in the Ohangwena region
5. Based on the results of this study, to make information available to other countries embarking on similar programmes to learn from the experience of the Ohangwena region

## **1.5 Research questions**

The researcher tries to find answers to the following questions:

1. How effective and efficient is Ohangwena in the provision of water supplies in rural areas?
2. Is the Ohangwena region approach an approach that other regions could adopt?
3. What are the risks in community management of rural water supply?
4. What is the most effective framework for critical success factors in community management of rural water supply in the Ohangwena region?
5. What lessons can other countries embarking on similar programmes learn from the Ohangwena Region experience?

## **1.6 Significance of the study**

A few studies have been conducted to determine the effectiveness and efficiency of rural water provision in Namibia, following the introduction of the reform of rural water supply.

One of these studies by Bock et al (2009) focused on the impact of cost recovery principles versus the government objective of alleviating poverty and inequality, and another study by Matengu (2013) focused on improving rural water supply and sanitation coverage in the Caprivi region. A study by Karuaihe et al (2014) focusses on rural water access and management approaches in Southern Africa, including lessons from Namibia.

The importance of this study is that it will generate important information and guidelines from lessons learned from the past and present community rural water supply systems and management. Furthermore, the findings of the study may be instrumental for planners and policymakers to identify an appropriate service delivery model for a rural water supply system for the country. It also intends to provide stakeholders with possible indicators of critical success factors in sustainable rural water supply and management as well as other associated aspects that need to receive due emphasis in future planning (Daemane 2015). The study also contributes as input towards the management of sustainable rural water supply and enriches the knowledge base for use by other researchers who intend to conduct broad-based research on rural water supply sustainability, community participation and management.

Heyns (2005) asserts that there is a need to put clear “mechanisms and criteria in place to assess whether institutions are operating effectively as far as water resources development, allocation, use, protection and management of resources” are concerned. The main contribution the current study makes is in developing a framework for rural communities to effectively and efficiently manage and maintain the rural water supply. Previous studies did not undertake a comprehensive review of community management

of rural water supply. Though this study also has not examined the overall impact of the reform and the challenges of the management of rural water supply in Namibia, it represents an attempt to understand issues concerning the management of water provision in the rural areas of Namibia with specific attention to the Ohangwena region.

### **1.7 Limitations of the study**

This section presents the potential weaknesses of the study. This study covers only one region out of fourteen. Hence the data obtained cannot be generalised to all fourteen regions in the country. The period of collecting the information was limited to two months; more information could have been generated if the researcher had been able to spend more time with the informants and observe the daily operations of committees.

The instruments, more especially the questionnaires, are designed in the official language. English being both the official and a second language to the respondents might have led to them misinterpreting some statements, leading to wrong information provided. However, most of the sampled respondents could express themselves in English. Where the respondents found it challenging to understand the question, the researcher was familiar with the culture, and the local language spoken in the study area. As a result, the researcher was able to explain in detail and made respondents understand the question.

### **1.8 Delimitations**

Concerning the scope and limitations of the study, it is worth mentioning that the extent of the study is limited to the investigation of the critical success factors for the community

management of rural water supply in the Ohangwena region. The purpose of the study is to look at specific phenomena surrounding community management of rural water supply, such as planning, management, operation and maintenance of the water points. Conducting a comprehensive research study and providing data and findings pertaining to all aspects of the water supply system is not the mandate of this study. There was a short time to test the rural water supply management model developed for Ohangwena region. However, it is recommended that the next research looks at the applicability of the model.

## **1.9 Research methodology**

The study investigates the critical success factors for community management of the rural water supply in the Ohangwena region, Namibia. Five main questions are developed to find answers as to what constitutes the success factors in managing community water points in the study area. A mixture of both quantitative and qualitative research methods for data collection and analysis are used in this study. To ensure the validity and reliability of the data collected in the field, the method of triangulation is employed. The interviews, survey (questionnaire) and document reviews are used to gather information.

The study is divided into two phases: a survey was administered to 50 respondents in the first phase of the study to determine the current status of rural water provision and management in the region, while interviews were conducted with 15 informants in the second phase of the study to understand the world from the subject's point of view, so as to unfold the meaning of people's experiences, and to uncover their lived world prior to

scientific explanation. The choice of these methods is influenced by guidelines concerning experiencing an inner change of views and understanding the reform from the point of view of those who are involved. The research instruments that are used comprise a semi-structured interview guide that was produced for interviews, and a questionnaire developed as a diagnostic tool that could be administered for collecting quantitative data from the study area in the first phase of the study. Documents which are valuable sources of information in qualitative research were obtained. These sources of information provide valuable information in helping the researcher to understand the issues surrounding community management of the rural water supply.

In the end, data collected using different instruments and techniques are analysed and interpreted according to the stated research objectives and questions of the study. The researcher analyses literature and policy documents at national level, obtained mostly from the Directorate of Rural Water Development, Ministry of Water, Agriculture and Forestry, and regional and constituencies' information to integrate existing knowledge on water management in Namibia. The study is expected to be particularly important to planners because community members in their areas are likely to have similar views on current and future development.

### **1.10 Research ethics**

Ethics generally deal with beliefs about what is right or wrong, proper or improper, good or bad (McMillan & Schumacher 2001:196). In line with local, regional and international policies, the Namibian government requires that anyone researching in Namibia should



apply for a research permit. Before any data are collected, the researcher has to seek approval from the custodian Ministry of Agriculture, Water and Forestry (Appendix 4) to conduct research regarding water affairs. The letter requesting authorisation has to be accompanied by an ethical clearance letter (Appendix 5) from the University of South Africa. Both letters were used to introduce the researcher to the heads of the region, constituency, communities and the participants themselves. It is the policy of the University of South Africa that one obtains ethics clearance before embarking on any research project. Such authorisation and other approvals were obtained.

### **1.11 Reference techniques used**

The Directorate of Language Services at Unisa uses a *Style guide* as departure point for referencing in all study material of the University. This was also consulted, since it incorporates the Harvard referencing technique. References are listed in alphabetical order by using the surname of the authors, initials where applicable, year of publication, the title of the publication or document, publisher and place of publication. The nature of the source determined how each item was referenced.

### **1.12 Overview of chapters**

The thesis consists of seven chapters. Chapter 1 covers the introduction and background to the study. Topics included a brief background to the study, the rationale for the study, problem statement, the research questions, objectives of the study, research

methodology applied in the study, significance, limitations, delimitations and research ethics.

Chapter 2 presents the theoretical framework and a literature review outlining the development of rural water supply management in different parts of the world in both developed and developing countries. The review makes it possible to identify applicable approaches, trends and tendencies that are similar and different in the management of rural water supply.

Chapter 3 presents an overview of the Ohangwena region and the history of rural water supply in Namibia since independence in 1990. This chapter also deals with the nature and character of the National Water Policy and administrative framework for executing the water policy.

Chapter 4 provides a discussion of the methodology used for the study. Aspects such as research philosophy, the research design, population and sampling, research instruments and data collection method, analysis of data and ethical considerations are discussed.

The presentation of data and the analysis of information are discussed in Chapter 5, while Chapter 6 presents a discussion on the findings. Conclusions are stated, and recommendations are made in Chapter 7, and then the reference list and appendices are provided to complete the study.

### **1.13 Conclusion**

The conclusion arrived at in this chapter is that no comprehensive study on community management of rural water supply had been undertaken in Namibia. The critical success factors included beneficiary participation in the planning, management, operation and maintenance, as well as coordination and support provided to the water point committees. The study is limited to Namibian rural water supply reforms from 1997 to 2017. This study will make a contribution to filling gaps by answering the research questions based on the primary objectives of the research study.

## **CHAPTER 2: THEORETICAL FRAMEWORK AND REVIEW OF RELATED LITERATURE**

### **2.1 Introduction**

This chapter presents both the theoretical framework and literature review with regards to the key management challenges facing the community management model for rural water supply. The community-based management model, a dominant policy and programme approach, is envisaged to address the sustainability question that faces water supply projects in many countries of the world. The monocentric versus polycentric decentralisation and institutional co-production shape the theoretical lenses for this study.

The chapter traces the global and international developments as well as events that have led to the emergence and popularisation of community management as a key model necessary for delivering sustainable water services. The development of rural water supply, as well as on-going debates and practices associated with the community management of rural water supply, are discussed. The literature produced by the International Drinking Water and Sanitation Decade (1981–1990) regarding community management and participation in rural water provision forms the basis for this chapter.

Water is the spring of life and essential to human livelihood (Odeku & Konanani 2014:161; Ruppel & Ruppel-Schlichting 2011; UN 2018). Before going into the details of a rural community, it is crucial to explain the term “rural community”, as there is not only one valid definition. The definition of “rural community” differs contextually in such that what

is regarded as a rural community in one country might not be rural in another. There are, however, common principal factors such as the economic activities and population of communities that are considered in defining a rural community. The predominant economic activities in these communities are the production of food and raw materials. According to Dessalegn (1999) and the United Nations (2018), it is important to promote the involvement of the main stakeholders in the management of water supply if rural water supplies are to be sustainable and managed effectively and efficiently.

It is confirmed in the literature that making major decisions requires greater involvement of the beneficiary community (Rural Water Supply Network 2017). In this case, decisions concerning the water supply scheme should not be left to the government alone as such major decisions may have a far-reaching effect on the livelihoods of the beneficiary community(s) (UN 2018).

## **2.2 From monocentric to polycentric water governance**

These two approaches to water governance are prevalent in different parts of the world in service delivery. Moench (2003) defines “water governance” as a framework that regulates the decision-making process concerning water resource development and management. The polycentric approach has gained prominence in recent years in providing services to the citizens. Many studies (McCord, Dell’Angelo, Baldwin & Evans 2016; UN 2018) suggest that polycentric structures result in improved natural resource governance. It is believed that governance enhances civil society’s participation in making decisions and is more efficient at solving problems than governmental

approaches. Nevertheless, only a few of these propositions have been empirically tested (Dobner & Frede 2016). Hence, this study investigates the critical success factors in the Namibian reforms on water governance and determines if they have produced the beneficial outcomes predicted by theory. The water governance in Namibia is informed by the polycentric approach (Bock et al 2009). Mugumya (2013:34) states that both traditional and modern perspectives of the state as the prime actors in service delivery could be traced to the popular conception of a welfare state back in 16th-century Europe, liberal reforms of 1906 to 1914 and the post-world war legislation of 1944 to 1948. In all these events, a welfare state is an ideal model of service delivery in which the state is the sole actor, having responsibility for the production and delivery of comprehensive and universal welfare services for citizens. Before the independence of Namibia, the government of the time acted as a welfare state as regards service delivery. Water was provided at no cost by the state. At that time, proposals and subsequent amendments were all directed at ensuring the well-being of the people.

Much of the literature on water governance focuses on the decentralisation versus centralization of authority debate. According to Marume and Jubenkanda (2016:106), the terms “monocentric” and “centralisation” are defined as the concentration of power at the top of the administrative system. Although they are not synonyms, “polycentric” and “decentralisation” both refer to the dispersal of authority among the lower levels of the administrative system (McCord et al 2016:04). “Polycentricity” is defined in different ways. Studies however have tended to agree on a few key characteristics. The concept “polycentricity” always involves a social system of multiple decision centres having limited and independent prerogatives and operating under an overarching set of rules

(Andersson & Ostrom 2008). Michael Polanyi first envisaged this term in the 1951s in his book *The logic of liberty* as a possible approach to governance and from there diffused to various studies (Aligica & Tarko 2012:237). Although there is a difference between polycentricity and decentralisation, the mechanisms for coordination and cooperation between decision centres are crucial qualities of polycentric regimes (Pahl-Wostl & Knieper 2014).

Furthermore, Faguet (1997) defines decentralisation as the transfer of responsibility for planning, management and resource-raising and allocation from the central government to regional and local authorities. During that time, scholars of government believed that polycentric creates overlapping jurisdictions that do not stand in a hierarchical relationship to each other, they are chaotic and pathological and call for consolidation of service provision to improve efficiency (Aligica & Tarko 2012; Dobner & Frede 2016). However, Ostrom, Tiebout, and Warren in 1961 opposed to that argument. They suggested that consolidated approaches to service provision were likely to be inefficient because such “one size fits all” methods could not account for different preferences between various groups of citizens (McCord, Dell’Angelo, Baldwin & Evans 2016:3; Goodwin 2018). For its characteristic “many centres of decision-making which are formally independent of each other”, the polycentric approach gained prominence as it had the potential to improve efficiency (McCord et al 2016:3). As a consequence, an increasing number of scholars have further developed the concept of polycentric governance, both theoretically and empirically (Dobner & Frede 2016).

While many countries in Europe, the United States of America, Africa and Asia enacted more or less similar legislation to “promote the welfare of their citizens” (Mugumya 2013:35), the system of the state providing everything to the citizens was not sustainable. Hence there are the promotion of public participation, the cooperation between non-governmental stakeholders and governmental bodies (Dobner & Frede 2016). Public participation can contribute to the quality and legitimacy of decisions as well as emancipate people not only from passiveness but also from dependency (Daemane 2015). In many African countries “... the central government and external support agencies were responsible for planning, constructing, and maintaining of the rural water supplies” (Fielmua 2011:174) with little or no involvement at all of the beneficiary rural communities. After many years of failure of top-down or centralised planning and provision of such services, the emphasis has shifted to a decentralised community-oriented approach (Braumah & Fielmua 2011:74). Hence, in the early 1980s, there was a major paradigmatic change from the welfare state approach to service delivery with efforts directed more towards reducing the role of the state (Maganga, Butterworth & Moriarty 2002). This stemmed from the emergence of the concept of community management as part of contemporary public policy. Many countries around the world began to transition from a highly centralised (monocentric) system of water governance to one demonstrating a polycentric order (McCord, Dell’Angelo, Baldwin & Evans 2016). A centralised management system was the norm in many developing countries, Namibia is no exception. The institutions of community management systems were operated and controlled by the state institution (Opare 2011).

In this regard, Ostrom (1972:2) stated that:



Polycentric order is defined as one where many elements are capable of making mutual adjustments for ordering relationships with one another within a general system of rules where each element acts with the independence of other elements. Within a set of rules, individual decision-makers will be free to pursue their own interests subject to the constraints inherent in the enforcement of those decision-rules.

Modern proponents of democracy argue that, for public policy decisions to be democratic, public participation in such decisions needs to be meaningful and engaged (Gbedemah 2010:37; UN 2018). In a hierarchical, top-down political structure, it is tough for civil society to participate in policymaking because the avenues for public participation are limited and are often bound to fail. Before the independence of Namibia, water was supplied to rural communities at no charge, a characteristic of a welfare state. Polycentric systems always involve multiple and independent centres of decision-making (McCord et al 2016). Moreover, there is evidence that the polycentric structural features give rise to good governance outcomes as it is more resilient to environmental shock and allows local groups to devise rules that respond and adapt to local conditions (Folke, Galaz, Crona, Osterblom & Olsson 2012; McCord et al 2016). According to the United Nations (2018:15), good water governance is an essential pillar for implementing SDG 6. However, governance structures were found to be weak and fragmented in many countries. Good water governance provides the political, institutional and administrative rules, practices and processes for making decisions and implementing them, “stakeholders can articulate their interests and have their concerns considered, and

decision-makers are held accountable for water management” (Organization for Economic Cooperation and Development 2015:5).

This happened because local communities are better positioned to craft informal rules that meet localised needs more efficiently and equitably than government administrators’ formal rules (McCord 2016; Ribot, Agrawal, & Larson 2006). Several studies provide empirical evidence that polycentric governance regimes tend to have high performance (Pahl-Wostl, Lebel, Knieper, & Nikitina 2012; Dobner & Frede 2016), particularly when compared with non-polycentric or less-polycentric systems (Da Silveira & Richards 2013; Pahl-Wostl & Knieper 2014). This study looks at the critical success factors surrounding the community management of rural water supply.

Decentralisation is often described and operates in terms of the three spheres, namely political, administrative and economic (Feinstein 2015). According to Marume and Jubenkanda (2016:107), political decentralisation stands for the formation of new levels of government like the autonomous states in India or provinces in Canada. While it is difficult to separate the administrative, it relates more to the delegation of decision-making as opposed to decisions about the nature of decentralisation. Furthermore, economic decentralisation refers to the locations of financial decision-making. Therefore, water resource management can be influenced by all the three spheres of decentralisation and can be improved or hindered by efficiency, governance and distributive values as opposed to centralised systems.

The governance value is characterised by “responsiveness and accountability, diversity, political participation, education and leadership, countervailing power, national interests and equality” (Pahl-Wostl et al 2006; UN 2018; Feinstein 2015). In the polycentric governance, responsiveness among policy-makers is highly encouraged, and citizens are given opportunities to choose preferred options. In so doing, giving the power to make the decision at the lower levels of government, results in higher levels of interest and participation by the citizens as well as greater efficiency (Feinstein 2015).

According to Reed and Kasprzyk (2009:411), water management across the globe is characterised by groups of related problems due to their complexity and far-reaching consequences. These problems cannot be solved by one single organisation; it requires cooperation and collaboration among various actors. The collaboration of all involved in water management is encouraged in a decentralised approach. There is a general conviction that centralised systems cannot bring the required services to the rural water sector (Muthunayake 2010). Hence, in the late eighties there was a strong push towards decentralisation and a growing trend to motivate rural communities to be in charge of their water supply schemes. Decentralisation is increasingly seen as the way forward in water governance (Reed & Kasprzyk 2009 & Muthunayake 2010). Daemane (2015) cautions that popular participation should be promoted in any process of decentralisation.

According to Marume and Jubenkanda (2016:108) and Feinstein (2015) decentralisation “increases administrative efficiency by decreasing delays, curbing red-tapism and encouraging faster action, reduces the workload of the head office and enables the top echelons to concentrate on vital issues like policy formulation, develops resourcefulness

and self-respect among the dependents by making them take decisions with a sense of responsibility, makes administration more responsive as the field units act with the knowledge of local conditions and requirements and facilitates people's participation and strengthens democracy at the grassroots level".

Furthermore, Aiyar, Piriou-Sall, McLean, Williams and Binswanger (1996) appraise decentralisation as one that promises a reversal of neglect of local institutional development, improving development projects and making them more sustainable, enhancing government responsiveness as well as increasing information flows between government and citizens. It also promotes greater participation and associational activity, improving transparency and accountability as well as integrating society with the state while reinforcing and reinvigorating democracy at the national level (UN 2018). With the polycentric approach, moderate promises were also observed in the commitment of the central government to rural development, the reduction of regional disparities and tackling the problem of coordination.

On the contrary, the study by Aiyar et al (1996) and Feinstein (2015) furthermore argue that decentralisation has shown little promise in places where it was introduced with regard to the alleviation of poverty within localities, over-bureaucratization, acceleration of economic growth, reduction in overall government spending, policy coordination and stabilisation as well as promotion of planning from below; and mass participation in projects. Sometimes it complicates coordination and integration of the activities of various units due to a reduction in the degree of central control over the entire organisation (Marume & Jubenkanda 2016:108). However, the literature on polycentricity suggests

that coordination among local, regional, and national actors should encourage mutual adjustments and the undertaking of collective action at multiple levels.

Namibia has adopted a polycentric approach to rural water supply management (Bock et al 2009). However, policy implementation resulted in poor coordination among stakeholders. The conclusion drawn by the study is that successful decentralisation depends on the accountability, organisational ability and relationships amongst those who are involved.

### **2.3 Institutional co-production theory**

Institutionalised co-production is defined as the delivery of public services through a regular lasting relationship between state agencies and organised groups of citizens, where they equally render significant resource assistance (Joshi & Moore 2004:31). Goodwin (2018:8) defines “co-production” as “public services, service users and communities making better use of each other’s assets and resources to reach better outcomes or improved efficiency”. The research and analysis of co-production increased since Ostrom (1996) introduced the concept to development two decades ago. Although her definition was vague and narrowly focusing on service delivery, her insight provided a useful starting point to think about how states and societies interact to deliver public goods and services (Goodwin 2018).

In recent years, the concept of co-production of public services has received increased attention as a potential means to reduce costs, improve the quality of services and expand

citizens' participation in decision-making processes and thus increasing the effectiveness and efficiency in joint service production (Sorrentino, Sicilia & Howlett 2018:279; Llano-Arias 2015).

Furthermore, institutional co-production is voluntary or involuntary involvement of public service users in any aspect of the planning, controlling, delivery and evaluation of public services. There is mutual obligation/dependence between the public service and community (Llano-Arias 2015).

The public service organisation depends on the community for policy implementation, and service delivery as the community depended on it. Additionally, co-production means that citizens have a critical role in producing public goods and services of consequence to them (Gaventa 2006:11; Goodwin 2018). Hence, from the vantage point of democratic philosophy, the new public service model approaches towards public management are built on the notion of supporting more participatory mechanisms of action and citizen engagement. Bourgon (2007) and Gaventa (2006) use the concept "democratic citizenship" to open up fresh perspectives, where the role of government is not confined to responding to the demands of users or carrying out orders.

Furthermore, Bourgon (2007) proposes that the approach to new public administration contains four elements which are building shared relationships with citizens and groups of citizens, encouraging collective responsibilities, distributing information to promote public dialogue and to foster a shared understanding of public issues, and seeking opportunities to involve citizens in government activities. Placing citizens at the centre of

the public sector reform effort has important implications for the design and sustainability of rural water provisions.

The mutual relationship in public good, service production and management is elaborated on well with practical examples by Joshi and Moore (2004:39) with reference to “condominial sewerage” in Brazilian cities, where government agencies and groups of citizens have cooperated in supplying low-cost sewerage to impoverished communities through citizen involvement in the planning, construction and maintenance of sewers. This suggests that poor and marginalised communities do not simply wait for the state to deliver public goods and services but organise and mobilise to gain access to basic services and improve their lives (Goodwin 2018).

Another example of co-production is the Citizen Police Liaison Committee established in 1989 in Karachi, Pakistan, where disorder, murder, kidnapping and continuous disruption of industrial and commercial life was rife. Neither the police nor the army could cope. According to Goodwin (2018), the initiative was driven by the local economic elite who collaborated with the local police and government to monitor and tackle escalating crime and disorder in the city. Contributions from the elite came in the form of labour, knowledge, information and finance while the police and government committed human and financial resources and provided bureaucratic organisation and authority. Co-production works as a mechanism for the poor citizens to gain access to public services and also as a platform to transform their relationship with the state and strengthen their political rights, this case shows that co-production is not limited to collaborations between the state and the poor.

The involvement of this committee in the fight against crime contributed to the betterment of life for the people who were living in a difficult environment. Institutional co-production is seen as a positive development in the delivery of public services because it promotes participative democracy contributing to greater satisfaction of users to services (Voorberg, Bekkers 2014). Hence, institutional co-production sees people as active agents, growing their capacity and confidence through active participation in service provision (Annala et al 2016:3).

This new development of sharing responsibilities between the state and citizens runs against traditional orthodoxy where public officials are charged exclusively with the responsibility of designing and providing services to citizens who, in turn, only demand, consume and evaluate them (Pestoff 2006:506; Dobner & Frede 2016).

Furthermore, Bock et al (2009:116) argue that co-production has shown that fully centralised governance systems are inefficient, and proposed a polycentric view instead, which considers a relationship among multiple authorities with overlapping jurisdiction. In public administration and management theory, co-production is largely preoccupied with how service user participation can be added into the processes of service planning and production to improve the quality of these services (Etgar 2008:98).

The theory on co-production connects well with the theory on critical pedagogy by Christens, Winn and Duke (2015) which emphasise the inclusion of the subject into the investigative process or the promotion of critical consciousness through participatory processes. This approach simply means that the knowledge and opinions of rural



inhabitants are critical for inclusion in the planning and management of development projects and programmes.

### **2.3.1 Drivers of co-production**

Joshi and Moore (2004:41) propose two key drivers that make co-production desirable or possible. These drivers are governance and logistics. In many instances, co-production has evolved in response to a decline in governance capacity at local or national level. The studies by Schouten and Moriarty (2003) and Leclert, Nzioki and Feuerstein (2015:40) have indicated that many community water schemes in different parts of the world break down not long after construction. The result is that governments abandon or no longer provide certain services very effectively. In affected communities, organised groups of citizens with something at stake consequently move in to help shore them up. Such an occurrence is referred to as the governance drivers of co-production.

Without citizen involvement, effective service delivery by state agencies can be difficult. Service delivery is difficult in rural areas because the cost of interacting with huge numbers of poor households is too high. It is effective and efficient when the beneficiaries become involved in an organised way at local level. This is what labelled logistical drivers, or causes of co-production (Joshi & Moore 2004:41).

Generally, rural water supply appears to be mismanaged and poorly organised performance in many communities. Successful performance of institutionalised co-production is reported where the representatives of service users have some discretion

in the final distribution of water towards the endpoint of delivery and when there are institutionalised mechanisms through which user representatives can have some influence on the local-level policies and operations of the service maintenance and planning (Joshi & Moore 2004:42).

Furthermore, it is found to be logistically challenging to deliver services effectively without co-production (Joshi & Moore 2004:43). Dealing with a large number of clients, diversity of operational situations and lack of necessary resources are cited as critical factors in delivery and hamper the successfulness of a sole provider acting alone without co-production. Resources mentioned above include information on local client needs, situations, equipment, personnel – especially regarding numbers and adequate locations to deal with emergencies and the authority to command help from members of the public.

Institutionalised co-production is believed to be the effective means of mobilising the resources needed to cope with issues associated with logistics. The most visible example of institutionalised co-production through logistics is Joint Forest Management in India, where Forest Departments and local communities cooperate in planting and protecting forests and sharing the eventual proceeds. Effective management virtually requires the active collaboration of both parties (Joshi & Moore 2004).

From a service management viewpoint; however, the nature and role of co-production in public service delivery are somewhat different (Osborne & Strokosch 2016). Importantly, though, the basic premise is that co-production is an essential and inalienable core component of service delivery: you cannot have public service delivery without co-

production. Interestingly, the conventional service management theory stems from tripartite notions of intangibility, inseparability and co-production. Most significant in the context of this study is the last point about the importance of co-production to service delivery.

According to Osborne and Strokosch (2016), this traditional formulation has also evolved recently through the exposition of the service-dominant perspective. Through this perspective, service is seen as a process through which value is added to any service or product through the transformation of service components at the point of co-production. Therefore a service does not have any intrinsic value to its users; value is co-created through co-production. The contributions of users during service production are not only necessary but are also crucial to the performance of a service.

Co-production leads to the co-creation of value for the service user. This value comprises their satisfaction with the service; the impact of the service experience upon their wellbeing; and the extent to which it meets their social, health or economic needs. Public services also contribute to the co-creation of 'public value' to the extent to which they contribute to the meeting of societal objectives or contribute to social cohesion or wellbeing (Osborne & Strokosch 2016).

Traditionally, according to Kelley, Donnelly and Skinner (1990), "giving users a say" in enduring social services means the constitution of a representative body, where a small sample of users communicate complaints and suggestions within formal arrangements. Here, users do not bear any responsibility for the actual service delivery. During co-

production, users (sometimes literally) become “partial” employees of the service providers. They do not only supply ideas to the service creation, but also behaviour, time, and other resources, taking over a portion of the service delivery functions.

Thus, co-production can be described as the most direct way of influencing public services and their outcomes. When users perceive a lack of inclusion and influence, trust in public service delivery and government may decrease.

Joshi and Moore (2004:31) state that institutional co-production, compared to traditional management theory, is a positive development in the delivery of public services such as water. In conventional management theory, the government is trusted to provide public services such as water supply against the citizens’ labour and tax payments while institutional co-production is characterised by a mix of activities towards providing public services contributed to by both public agents and citizens. Institutional co-production is believed to be amongst the best organisational arrangements for the delivery of public services.

Institutional co-production promotes participative democracy and contributes to greater satisfaction with services by users (Ostrom 2000; Fung 2004; Brandsen, Pestoff & Verschuere 2013) and ensures the development of service quality in public service. This positive aspect is associated with the empowerment of citizens: people are seen as active agents, growing their capability and assurance through active participation in service provision. In order to realise sustainability, people’s ability and trust have to be built (Daemane 2015). According to Kobrin (2009:350), institutional co-production can be seen

as a continuation of a new governmental order that is characterised by the fragmentation of authority; the increasing ambiguity of borders and authorities; and the blurring of lines between the public and private spheres.

Furthermore, the social contract theory provides a theoretical perspective through which the production of public services can be divided between government actors and citizens. According to this theory, citizens and the government are in a mutual relationship where the government is entrusted to provide public services such as health, education and water supply against the citizens' labour and tax payments. In many countries in the global south, however, this social contract is breaking, as many services are either privatised or under-funded. Responsibilities are being reorganised, and citizens have been encouraged to take on new roles in public service provision. Such new functions may include monitoring of public services through participatory observation (Wehn & Evers 2015), or active participation in producing public services (Annala & Suominen 2016:3).

Co-production is typically seen as a dynamic relationship between the citizen and the state. What researchers (Annala & Suominen 2016:3) of co-production recognise is that public services rely as much on assets, unacknowledged knowledge, and efforts of service users as on the expertise of professional providers. It is further acknowledged that the state needs the community as much as what the community requires of the state in order to function properly and fulfil public service. There is evidence from the literature (Joshi & Moore 2004:41) that there is a secure connection between good performance and the extent to which there is institutionalised co-production.

### **2.3.2 Operation and management of rural water supply**

There are so many places where institutional co-production work effectively. An excellent practical example of institutional co-production can be found in Ethiopia. The study in Ethiopia by Annala and Suominen (2016:9) identify five roles that characterise the institutional co-production of community-managed operation and maintenance in rural Ethiopia and how responsibilities are shared among the actors. Identified role players include the enablers, supporters, private providers, empowered leaders and compliant citizens.

The enablers include the higher government bodies, donors and Non-Governmental Organisations (NGOs) who are responsible for formulating the policies and procedures; deciding on the most appropriate approach to provide access to drinking water; and making sure the policies trickle down to the level of operation. They finance, regulate tariff and manage the construction of water schemes. In Namibia, the Ministry of Agriculture, Water and Forestry is the enabler responsible for the roles as mentioned above.

The second role is the supporter, which includes the governmental district officials and NGO field staff members who are responsible for a variety of activities such as training, supervising, conducting awareness-raising activities in the communities, monitoring and significant maintenance. They operate at a district/regional level. Their work is mostly about governing, for example, establishing the community management structures and organising the communities. They also strengthen and empower the rural dwellers on their stated responsibilities. Politically they remain accountable to citizens, and they have

access to skills and resources that are required for the functioning of water schemes (Annala & Suominen 2016:7). In Namibia, the official at the Directorate of Rural Water Supply plays the role of the supporter.

The third actor is the private providers which include the local suppliers and service providers. Their role is to sell materials, sell spare parts and provide minor maintenance services or repairs. According to Annala and Suominen (2016), institutional co-production creates more space for private actors, as procurement is not undertaken in a centralised manner. Within a conducive environment provided by the enablers and supporters, they sell and provide for the members of the community. They remain under the control of supporters who can influence the buying behaviour of water committees, and who from time to time, develop their own mechanisms for selling spare parts (Annala & Suominen 2016:7). In the Namibian situation, these are the business communities who provide repair parts.

The empowered leaders are in the fourth role. These are the water committee members. They have to convince the rest of the community of the necessity of clean water, and the usefulness of regular tariff collection. They are also responsible for collecting tariffs, preventive maintenance, setting up rules for the use of water and receiving training on how to govern the scheme (Annala & Suominen 2016). This group is referred to as the water user association and water point committees, respectively.

Lastly, the compliant citizens are the community members who use the water scheme. They contribute to the operation and management of water schemes through paying the

tariffs, providing labour and local materials. It is critical that awareness of clean drinking water is made to this group. If not, they would not be keen to contribute money. They do hold the water committees accountable for managing the maintenance and overall service (Annala & Suominen 2016:8).

However, to make this approach practical, capacity building should be provided in order to enable the community to be in a position to conduct operation and maintenance work and be willing to contribute to water tariffs (Daemane 2015). While capacity-building remains a critical factor for effective management of rural water across the world, the United Nations (2018:16) points out that there is an acute shortage of capacity constraining water resources development and management in all its aspects across most developing countries, particularly in sub-Saharan Africa and south and south-eastern Asia. However, this is not a new phenomenon; it has been a leading concern and constraint on water-related development for many decades.

According to the Water and Sanitation Program (2015:4), Asoga village in Karnataka, India, demonstrated a “unique demand-driven approach to facilitate participatory decision-making leading to community ownership”. Community members were fully involved at all stages during the construction of the water scheme. Their involvement was professional, including conducting periodic material tests that ensured high-quality construction. After the construction of the system was completed, elected committee members were provided training on the operations and maintenance (O&M) of the water scheme/points. Training provided included maintaining books of records and other technical aspects of managing the scheme, among others. This training was followed by



additional community campaigns on the use of water and ensured continued community participation.

The success of the Asoga Water Supply Scheme in Karnataka clearly shows the difference that a committed leadership and a motivated community can make in achieving the sustainability of a scheme (Water and Sanitation Program 2015:4). It also demonstrates the importance of determining the implications of scheme design on implementation and operation and maintenance costs so that appropriate measures, taken at the initial stages, can make the scheme affordable for the community. Such initiatives can be replicated in Namibia, and similar benefits realized in other schemes as well.

## **2.4 Review of related literature**

This part of the study reports on current literature regarding the key management challenges facing water service institutions and experiences from community management models for rural water provision in different parts of the world. Successes and failures of community management approaches to water provisions are also highlighted.

### **2.4.1 Historical development of the community management of rural water supply**

For many years, Community Management (CM) has become a prominent model in the design of rural water supply throughout the developing world, especially in sub-Saharan Africa (Kamruzzaman et al 2013:30; IRC 2003; Opare 2011; Hutchings 2018). According to Lockwood (2004), community management is hailed as the most successful model to deliver rural water supply services – better than supply-driven government-led models. However, there are other forms of rural water service delivery models ranging from direct local government provision to public utility provision, private-sector provision and supported self-supply (World Bank 2017), each with its own characteristics. Furthermore, Lockwood (2004) identifies common principles of community management which include participation, control, ownership and cost-sharing. This demand-driven community-led approach incorporates participatory methods and decentralisation strategies. Furthermore, Muthunayake (2010:9) commends the community management in the provision of rural water as the most effective way of achieving sustainability as it engages the community in planning, management, operations as well as in maintenance.

According to Chowns (2015:264) reform of the rural water supply sector occurred widely in the 1990s when many low-income countries replaced state-led service provision with decentralised community management in the hope of generating improved technical and financial performance and to ensure adequate, sustainable potable water supply through community investment and commitment (Fielmua 2011:175).

Most sources on this topic (Moriarty, Smits, Butterworth & Franceys 2013:329; Dobner & Frede 2016) emphasise that the contemporary approaches towards rural water supply in developing countries began in the 1980s and the International Decade for Drinking Water and Sanitation, where concerted action was undertaken to rapidly increase access to rural water and sanitation. During that period, water schemes were built at rapid rates, however, governments required the human capacity and monetary resources to manage and maintain these new infrastructures (Annala & Suominen 2016:1). Between the 1970s and 1980s, a large-scale breakdown of rural water supply systems was experienced. Governments were unable to maintain the systems they had built (Harvey & Reed 2007; Daemane 2015). Hence many interventions designed to address the rural domestic water supply faced sustainability problems (Mugumya 2013:9).

Community management occurs not only as the main management model but largely as a reaction to the failure of centralised government service delivery (Moriarty, Smits, Butterworth & Franceys 2013; Amer 2004) that could not sustain access to potable water services, especially in rural areas. Furthermore, Chowns (2015) emphasises that unresponsive bureaucracies fails to provide maintenance and repairs and an overstretched public purse is not able to meet the expense of the necessary expansion of services. It becomes clear that sufficient and sustainable water could not be achieved without involving the users, not only in the provision of the basic inputs but also in the planning of programmes, in the selection of appropriate technology, systems management and the establishment of a local management committee (Kwashie 2007:29). Dyer (2006) underscores that community management is not a concept or an

approach applicable to less developed countries only; in the USA, approximately 52 000 community water systems were serving on average 3 300 people in 1990.

Therefore, the community management model suits the water context. It strengthens the capacities and willingness of people in the community to assume a leading role in planning, construction, financing and managing water supply systems necessary for water sustainability after the implementing agency/government has left the community. This model, therefore, is considered to be the most acceptable strategy to deliver greater access and equity, thereby guaranteeing and ensuring sustainable rural water service delivery in Lesotho, including the sub-Saharan African region (Daemane 2015). The community management model is not a cure for all countries. Results in sub-Saharan Africa are not encouraging enough to justify the great optimism placed on the community management approach.

According to Muthunayake (2010:2), total government provision of water supply systems had created a culture of dependence in different parts of the world in which water supply systems were not seen as common property. By recognising the importance of public participation in decision-making, several international declarations and resolutions such as the Dublin Statement (1992) and The Hague Declaration (2001) promoted active public participation in water management through the community management approach (Muthunayake 2010:2; UN 2018). Public participation in decision-making is critical for water management. It yields many benefits, but it is more beneficial to measure the quality and effectiveness of such involvement rather than just relying on the quantity of engagement (UN 2018). The community management approach – “the idea that

communities should operate and maintain their own water supply systems” (Schouten & Moriarty 2004:1) was developed and widely promoted through a series of conferences and communiqués, including the 1990 Delhi Statement and the 1992 Dublin Principles. Namibia endorsed the community management model in managing the rural water supply.

During the Water and Sanitation Decade (1981-1990), the UN passed a resolution to increase community participation in the planning, operation and assessment of water (UN 2018). Furthermore, Principle two of the Dublin Statement (1992) put emphasis on the need to develop and manage water resources using participatory approaches by engaging users, planners, and policy-makers (Muthunayake 2010:2). This paradigm shift in development, in calling for a bottom-up approach rather than a top-down one was not limited to water provision but escalated to other areas of development. According to Goodwin (2018), active community involvement in the process gives them greater influence over the type of public goods and services they receive, which can guard against programmes simply being imposed by the state.

According to Chowns (2015:264), community management is a “reform intended to solve problems in the rural water supply sector and is situated in the wider context of public sector reform”. In the Nadowli district, Ghana, a community management strategy improved access to potable water (Fielmua 2011:174). Also, communities in Ecuador performed a crucial role in managing and supplying water to over 4,5 million people (Goodwin 2018).

The community management model was endorsed as one of the guiding principles for rural water delivery at the New Delhi Global Consultative Conference on Safe Water held in 1990 to review the International Drinking Water Supply and Sanitation Decade. Since then it has become the dominant and standard project management strategy in the United Nations Development Programme (UNDP) for the development of water supply (United Nations Development Programme 1990; Kwashie 2007; Amer 2004). This approach was complemented in the late 1990s by the demand-responsive approach (DRA) championed by the World Bank. The DRA was planned to strengthen community management. The demand-driven approach was adopted, where communities become critical partners in the project identification, planning and design, share part of the construction cost and take on the responsibilities of operation and maintenance. Community management as a demand-driven community-led approach incorporates participatory methods and decentralisation strategies to successfully deliver rural water supply services better than the supply-driven government-led models (Lockwood 2004). Namibia too, has experienced this evolution in community participation and has adopted it in rural water supply. By the early 2000s, the mixture of community management with the Demand Responsive Approach (DRA) became the approach for rural water supplies in many countries of the developing world (Moriarty et al 2013:331), Namibia included.

Before the demand-driven approach was adopted, in many sources (Lockwood & Le Gouais 2015; Chowns 2016; Schouten & Moriarty 2003; Harvey & Reed 2006) on community management state that in the 1980s, it was believed that community management of rural water supply performed poorly in the developing countries.

According to the UNICEF/WHO Joint Monitoring Programme (2015), most clean water is delivered through community-managed water points. Nevertheless, available figures confirm that many such water points do not work. It is estimated that around one-third are non-functional across the continent (Rural Water Supply Network 2009). A study by Taylor (2009) in Tanzania, affirms that one-quarter of new water points established become non-functional within two years of installation.

Engineers blamed poor quality control, anthropologists blamed lack of community participation, political scientists reported rent-seeking and poor governance structures and economists complained of poor pricing and tariff designs (Muthunayake 2010:11). As a result of these apparent failures in the 1980s, a change in approach was adopted in the 1990s. Hence, a demand-driven approach was adopted where communities become key partners in the whole project cycle of water provision.

Community management has many interpretations (Dyer 2006). According to Moriarty, Smits, Butterworth and Franceys (2013:331) and Fielmua (2011:176) community management is founded on a set of principles (both explicit and implicit) which included: community involvement in the development of the water system; community ownership of the system; and willingness and ability of the community to carry out operation and maintenance. Furthermore, Kamruzzaman et al (2013) emphasised that community management allows the beneficiary communities to develop, own and operate and maintain their facilities or systems. The core values of community management are to empower and equip communities to take control of their own development.

Much success in the approach led to the encouragement of community ownership of water schemes, including their long-term operations and maintenance (Schouten, 2006). According to Moriarty et al (2013:33), the percentage of rural people with access to an improved water source in the world increased from 62% in 1990 to 81% in 2010. It was then realised that the community had to be involved in making the systems more sustainable after handing over (Fielmua 2011; Muthunayake 2010). This approach came to dominate policy, practice and discourse in the rural water supply sector (Nicol, Mehta & Allouche 2012; Mugumya 2013). As a result, increased involvement of the community in development over the past two decades has changed the traditional roles adopted by the government and community. The change-over has resulted in governments moving away from “provider” to “facilitator” and communities from “receiver” to “doer” (Muthunayake 2010:9).

According to Annala (2016:1), community management of the rural water supply has been a famous approach in worldwide development policies for the past number of decades. It has been marked as a critical determinant for sustainable rural water supplies and has gained widespread popularity among donors and governments. It has been praised both for efficiency and the participatory approach as it aims at ensuring that end-users who rely on the water scheme and therefore have the strongest motivation to keep it working and have skills and funds to do the required maintenance themselves. The key mechanism is ownership creation through which people are made to feel they have both responsibility and power to act (Chowns 2015).



According to Amer (2004:86), “community management is the most elaborate form of putting community people in the driving seat”. Initially, people are drawn in through providing labour and resources in the building of systems. But soon, community involvement broadens to participation aimed at stimulating the responsibility and willingness of people in the community to operate and maintain their systems. The last step is to aim for community management, including all that is needed for a community to keep its water systems operational after handing over. Annala and Suominen (2016:2) define the co-production theory as a process through which diverse inputs are contributed by individuals and organisations that are not part of an official government agency responsible for producing a particular public good or service.

With the exception of addressing the issues of participatory governance, cost recovery and appropriate technology, there is a need to take into consideration the values, attitudes, capacities and preferences of the various participants in the supply and management of water in rural areas (Gbadegesin & Olorunfeni, 2007:2). According to Kamruzzaman, Said and Osman (2013:29), cost recovery can ensure the financial sustainability of any scheme. It is required for staffing, training, transport, spare parts, materials, tools, and replacement of units. Hence, it is critical to fix up the cost recovery mechanism, such as the basis of payment, and the means of administering and accounting for water charges by the community.

According to Gebrehiwot (2006), there are two critical success factors for the sustainability of rural water supply systems. They are pre-implementation and post-implementation factors. Pre-implementation factors include the community participation,

technology selection, site selection, demand responsiveness, construction quality, population and training, whereas the post-implementation factors entail technical support, community satisfaction, institutional and financial management, training, and willingness to sustain the water project. One of the pre-implementation factors for rural water supply systems is a demand-responsive approach (Beyene 2012:8).

Furthermore, Beyene (2012:8) indicates that when the community values the service, there is “willingness in the community to provide valued resources in exchange for services”. This means that the demand for the supply of water facilitates the management of the water supply system and enhances the rate of sustainability of the water supply system.

According to Lyer, Davis, Yavuz and Evans (2002), involving the users meaningfully in the planning, implementation, operation, protection and maintenance of the water supply system is the key to sustainability. Additionally, experience has shown that water and sanitation activities are most effective and sustainable when a participatory approach is adopted in response to genuine demand, as it builds capacity for operation, maintenance and sharing of costs (Beyene 2012). The involvement of community members directly in critical decisions develops a sense of communal ownership of the project. It is also emphasised that educational and participatory efforts are vital to change behavioural practices (United States Agency for International Development 2009).

### **2.4.2 Community management model for rural water provision**

According to the World Health Organization (1996:4), community management means that the beneficiaries of water supply have responsibility, authority and control over the development of their services. Furthermore, Fielmua (2011:176) explains that “responsibility entails that the community takes ownership of the system, with all its responsibilities and benefits/liabilities, while authority indicates that the community has the legitimate right to make decisions about the system”, whereas control implies that the community has the power to implement decisions regarding the system (Schouten & Moriarty 2004:3).

There is a growing body of knowledge that community management model is critical for the success of rural water supply management. According to Chowns (2015:264), the core of the community management model is the Water Point Committee, usually, a group of 6 to 10 community members/water users elected or otherwise delegated by their community to be accountable for a water point such as a borehole with a hand pump, a protected spring, or a gravity-fed tap.

The community should have the ability to make strategic decisions about how a system is designed, implemented and managed, to select levels, set tariffs and, if necessary, to employ someone else to look after the operation and maintenance. McGarry (1991) in Fielmua (2011) further argues that this would be more effective and efficient, because the community has the authority and responsibility for operation and maintenance, leading to improved sustainability of the services.

According to Harvey and Reed (2007), Doe and Khan (2004), Kamruzzaman et al (2013) and OECD (2015) the underlying assumptions of community management are to empower and equip the beneficiary community to develop, own, operate, maintain and take control of its own facilities or systems. These objectives can be achieved by allowing communities to play critical roles during the planning and implementation phases.

According to Harvey and Reed (2007), there are four developmental stages of community management for water supply:

- (i) Water committee formation
- (ii) Training and capacity building
- (iii) Setting and collecting water tariffs
- (iv) Management and implementation of O&M activities of the system.

In addition, Kabila (2002) outlines the following indicators as measures of community participation and management: participation in decision-making, informed choice, economic contributions, representation, responsibility, authority, control, and partnership. Community management has been commended for being the most appropriate model for scaling-up service provision in rural areas for reasons of flexibility and suitability.

According to Ferreira (2006), the management and maintenance of the community management model is carried out at the local level by community groups chosen by the users of the service. However, this requires extensive investment in constant and

permanent training and capacity building of all actors involved in the process, with particular attention being given to the community groups (Daemane 2015).

Schouten and Moriarty (2004:3) further indicate that community management could not do it all by themselves, as communities need support. They further explain that community management is a form of cooperation between various actors in the water sector and the community. This diversity includes the combined efforts in the identification of the anomalies that need resolving and linked suitable technologies that need to be promoted.

According to Ferreira (2006), principles of good practice highlight the importance of partnership with community members and key stakeholders; promote participation and sustainability, strengthen community capacity to improve their lives; and ensure community ownership of initiatives with clear roles and responsibilities and accountability mechanisms in place. Solutions must be affordable to rural poor, yet financially sustainable; organise community members and key stakeholders to develop best and plan sustainable solutions; establish a code of conduct for critical stakeholders to follow; value existing knowledge and ideas; and promote equality, non-discrimination and inclusion.

Lockwood (2004:13) highlighted that community management involves communities making strategic decisions about the level of service that they want, how they want to pay for it, and where they want it. They may also be involved in day-to-day operations and maintenance, in collecting money from users and in buying spare parts, however, they do

not have to be. They may choose to hire a professional to do this for them. In general, Schouten and Moriarty (2003) conclude that community management is about power and control.

McCommon et al (1990) explain that the control element as contained in this definition differentiates from community management (where the community has absolute control) and community participation (where the government and other institutions may have control). It, therefore, involves the establishment of a system in which government and community work together, and in which neither is the dominant partner. Both should have clearly defined roles, and each should understand and accept the role of the other. If this clarity is not well understood, community management may be impossible to implement (McGarry 1991).

Community ownership and management, however, does not mean that the community will not receive support from external sources (Fielmua 2011:177; Dyer 2006). The World Health Organisation (WHO) (1996) makes it clear that the community may receive support from the government or other agencies in the form of subsidies, technical support, and so on. It further asserts that it must, however, be the community itself that owns the system, makes the decisions on when to call for support and exercises control over access to the system (Fielmua 2011). Community ownership and management (COM), therefore is a strategy that empowers communities to advocate for water services through genuine partnership (Fielmua 2011). Rather than passive consumers, communities actively participate in the entire process of acquisition and operation of the facilities. This

implies that communities will have to elect water management committees that will be accountable for managing the water facilities (Fielmua 2011:177).

According to the WHO (1996) and Daemane (2015), the essential components or universal principles of the community management model, as defined above, are concerned with all issues pertaining to responsibility (ownership), decision-making authority, and control over project development and systems operations. Community activities in this regard help to ensure that Rural Water Supply and Sanitation (RWSS) improvements will be sustained (McCommon et al 1990:10; Kamruzzaman et al 2013).

#### **2.4.2.1 Community participation**

There is a belief that participation improves the efficiency of a project with an assumption that if people are involved, they are more likely to accept the project and take part in its ongoing operation (Muthunayake 2010:12). For the purpose of this study, community participation (CP) refers to the process by which communities are empowered to make effective decisions (Harvey & Reed 2007). According to Ananga (2015), the idea of community participation in decision-making is a very old one. The roots of CP as an approach in social development can be traced to different cultures across the globe. Community participation developed during the time of the Greek city-states, where it was believed that every “citizen” should be permitted to take part in decision-making. In Africa, participation had long been practised by the indigenous communities before the arrival of the Europeans (Njoh 2003), whereas in the Western world the modern theory of community participation as illustrated by Mansuri and Rao (2013) can be traced to the

classical works of Rousseau and Mill. They equated community participation to the contemporary liberal democratic principles, a political model where people make interdependent decisions that take into account the will of everybody. From the Eastern, or more specifically, the Asian perspective, the concept of CP was greatly popularised by the legendary work of Mahatma Gandhi (Mansuri & Rao 2004). According to Ananga (2015:34), Gandhi strongly argued for the promotion of community/citizen participation as a viable strategy in development planning through the organisation of village Panchayats, that was a kind of local community-controlled self-government at the village level.

According to Sanoff (2005) the more the community are involved in a decision-making process, the more likely they will develop a sense of teamwork and cooperation, thereby increasing their motivation, commitment, and contribution to the process of development. Furthermore, Ananga (2015) explains that involving people in their own development ensures that the proposed development will better target people's needs, including local knowledge, create the grassroots capacity to undertake other projects and maintain facilities, distribute benefits equitably, and help lower costs. Community participation was identified by the United Nations in 1955 as being synonymous with community development. This understanding changed after two decades when the International Labour Organization (ILO) emphasised that community participation should play a key role in the provision of basic needs and as a means for increasing efficiency and self-reliance. The World Bank Learning Group on Participatory Development (World Bank 1996) define participation as a process through which stakeholders' influence and share control over development initiatives, and the decisions and resources which affect them. Moser (1989) argues that basic needs such as health, education, water, etcetera, can



only be provided efficiently through public efforts, thereby highlighting the role of non-material basic needs as a means to meet material needs.

Community participation should be a way of doing business in the public sector. This approach leads to the community taking a central role in project planning, implementation and monitoring of projects; this is a prerequisite for project ownership, successful implementation and sustainability of the projects (Mwakila 2008). It also recognises that the natural resources of a country belong to its people, and they have a right to participate in its management. Tedesse, Bosona and Gebrensenbet (2013) affirm the importance of community participation, claiming that it leads to government efficiency, ownership of policies and actions by the community and that the community then readily accept principles of cost-sharing.

The issue of community participation has become a debatable and contested case as there is an on-going argument concerning the parameters that determine its existence. Development practitioners working with communities have argued that communities need to be given an opportunity to manage and resolve issues affecting their livelihoods (Narayan & Srinivasan 1994). This calls for community participation that implies a proactive process in which the recipients take the lead in the development and management of development projects rather than simply receiving a share of project benefits (Paul 1987). Beneficiary participation is the ingredient of success in achieving good management of rural water supplies (Republic of Namibia 1999). This study concurs with the fact that community participation is critical for the effective management of rural water supply.

There are ,however stumbling blocks reported that prevent the effective implementation of the community management model. Kamruzzaman et al (2013) reveals that community management has seemingly failed to collect water tariffs properly resulting in poor operations and maintenance. For example, the water committee in Adama area assumes all responsibilities ranging from collecting water fees to maintenance and operation of the water supply scheme without adequate support from the Kebele Peasant Association (KPA) administration or the beneficiary communities (Lencha 2012:75). The practice of community follow-up and monitoring of the water supply system is very limited. In many cases in Adama, Ethiopia, there is no reporting mechanism to the community by the water committee other than the one they communicate to the district water committee.

In general, beneficiary willingness to contribute their share of capital costs is crucial to community participation because this acts as an indicator of community commitment to the project (Breslin 2003; Ramahotswa 1995). These are the usually practiced types of beneficiary participation, where community members are mobilised to take part in community projects that affect their livelihoods. In most cases, such kinds of community participation are characterised by a one-time package of engagement that involves labour, cash, local materials and other forms of contributions.

In the context of the beneficiary community in Ethiopia, the spirit of community participation is understood as one-time social mobilisation focused on pulling the required community inputs towards materialising the intended water supply scheme (Lencha 2012). Immediately after the completion and operation of the water supply scheme, the

whole responsibility is left in the hands of the elected water committee, without leaving room for an accountability factor. As a result, all issues surrounding the water supply scheme become the business of the water committee with no support from the KPA administration and the community at large (Lencha 2012:76).

Community participation has to be scaled up and needs to involve two levels, namely, participation in management and governance. Management mainly deals with the day-to-day supervision and decisions at the operational level, whereas governance focuses solely on devising working rules and regulations commonly practised across the entire water supply project itself (Dessalegn 1999; Lencha 2012). This necessitates the drafting of appropriate management and governance structures that best suit the intended purpose. Government and other partners need to be committed to the development of such institutions as it is a long-term process that calls for in-depth work with beneficiaries; otherwise, participation in management without involving governance, as has been practised, is not effective and will not ensure the sustainability of the water supply projects.

#### **2.4.2.2 Critical success factors for effective community management**

Several studies (McCommon et al 1990; Amer 2004; Schouten & Moriarty 2003; Remmert 2016; Kamruzzaman et al 2013) including a study by Muthunayake (2010) in Sri Lanka, listed the following factors critical for the effective management of rural water schemes:

- effective community participation
- economic support infrastructure

- skills and abilities of water management committees
- leadership of the water committee
- training and capacity building, coordination and back-up support
- transparency and responsibility
- motivation
- communication skills of implementing agency and staff
- external support, power and commitment of water management committee
- monitoring and evaluation
- personnel characteristics of the water management committee

Furthermore, Amer (2004) added that there are crucial aspects for consideration during the operation of community management models such as the social, institutional, financial, as well as the sustainability and replication of the approach, system and technical aspects.

According to the Water and Sanitation Program (2015), the participation of the community in the management of water provision is critical in ensuring functioning and maintenance. The success of rural water supply services is not the responsibility of one group only; it's a collective effort of all actors involved. Hence, community participation is characterised by the involvement of users in the negotiation; site selection; construction of stand posts; election of water committees; payment for water consumed; and maintenance and

monitoring of the stand sites. Evidence shows that communities are interested in participating in activities when they feel that they benefit directly from the services, which means that they must be informed about how their money is used (UN 2018).

The critical success factors of any water point/scheme is dependent on community empowerment, stakeholder consultation and involvement, transparency in governance, prompt maintenance services and strong leadership (Muthunayake 2010; Hutchings 2018). The absence of the above factors leads to illegal water connections, poor tariff collection and the crisis of a lack of funds affecting the operation and maintenance of the scheme (Water and Sanitation Program 2015:11). The skills and abilities of the committee members are critical factors. Therefore, continuous upgrading and training are required (Rural Water Supply Network 2017; Miruka 2016). The necessary personnel characteristics of the committee members have a positive effect on the success of water management.

Many studies (Lencha 2012; Beyene 2012; Mugumya 2013; Chowns 2015) highlight that it is essential that water committees are elected by users. This principle consists of two important elements, namely exercising citizenship at the local level (which incorporates elements of inclusion and participation) and the development of transparent management and accountability mechanisms (Kabeer 2005:18). During the election of water committees, members with strong leadership qualities should be elected.

The development of systems for cost recovery to ensure the maintenance and functioning of the stand sites is fundamental and the development of a partnership with the service

provider is crucial (Kamruzzaman et al 2013). Equally, the cooperation between different partners is necessary for the service to be provided. However, it is necessary that there is communication among the people involved and agreement on the responsibilities taken for each aspect of cooperation.

According to McCommon et al (1990:8) and Kamruzzaman et al (2013), when the community is in charge of its water supply, aspects such as community mobilisation and organisation, project negotiations, committee operation, training, hygiene and user education, community contributions, cost recovery, operations and maintenance are observed.

According to Chowns (2015:264), community management can lead to more efficient and effective water services in two respects. Firstly, there is a better technical performance with more frequent maintenance and faster repairs by local technicians. Unlike in centralised maintenance systems, hands-on community-based mechanics would not face the barriers of distance and poor communication, but would be rather quick to respond because they themselves would also be beneficiaries of the water point affected. Community managers would be well-positioned to conduct tests regularly and recommend preventive maintenance to ensure continued water point functionality.

Furthermore, if the government official should engage in effective post-construction monitoring, and the committee leadership is held responsible, there will be a need to maintain efficient records, and the leadership will pay more attention to manage the system effectively (Muthunayake 2010). Good record-keeping promotes transparency,

facilitates corrective action and justifies the actions of bookkeepers to water users to whom they are responsible (Daemane 2015). If there is external support to monitor the performance of the water committees, problems could be identified and rectified early. Hence, regular monitoring by responsible government authorities on the maintenance of facilities, ensuring that water quality testing is done and financial records are maintained and audited, will ensure that the water committee and its leadership fulfil its obligations.

Furthermore, according to Chowns (2015:264), community management is expected to lead to better financial sustainability in the sector. It is believed that the financial burden of the ongoing operation and maintenance of water supply services are too great for the state and that the only way to generate the required funds is through user contributions. Users will be interested in contributing as they will see a clear connection concerning these fees and the continuous functionality of their water supply, and regular maintenance will lead to reduced costs in the long term.

#### **2.4.2.3 Criticism of the community management model**

While there certainly was great optimism about the potential of the community management approach, criticism began to emerge from intensive debate within the sector regarding the shortcomings of the model. Threats to community governance surfaced through field observations in various studies on the subject and empirical findings of scholars who studied the community management approach. It is important to look at the possible threats to this celebrated approach.

Although a few practitioners still claim that community management works (Lane 2012), most assessments acknowledge that it has serious problems. The study in Malawi by Chowns (2015:272) finds that community management does not work well for communities. It cannot be called a “success”, because it has imposed unrealistic management burdens on users. The study concludes that community management is not an efficient or effective framework for the provision of public goods and service delivery. Furthermore, the model is found to generate conflict, is disempowering and reproducing inequality at the community level. It leads to erosion of social capital and abdication of state responsibility (Chowns 2015). Even though the model has brought many benefits, it has, to a large extent, failed to attain the ultimate goal of reliable and sustainable water supply at scale in most countries around the world (Lockwood & Le Gouais 2015; Kamruzzaman et al 2013).

Toyobo and Muili (2013) argue that in developing countries, a significant number of rural development initiatives fail to deliver benefits to communities over the long term due to inadequate understanding of the community involvement and sustainability. Furthermore, low rural water supply sustainability levels throughout sub-Saharan Africa indicate a severe limitation of the community management approach (Harvey & Reed 2007).

According to Kamruzzaman et al (2013:30), community management encounters a lot of challenges and sometimes cannot work successfully due to the absence of the right configuration of markets, government institutions and tradition. Colin (1999) and Chowns (2015) affirm that in different parts of the world where community management is implemented, maintenance is almost never done, communities are unable to manage



many repairs and, consequently, poor functionality plagues the rural water supply sector. There is also a sticky problem with the volunteer-based community management of water supply in that the community-level committee and caretaker lose their interest, or trained individuals move away, or the community never entirely takes ownership of the new infrastructure. Dyer (2006:2) states that the reduced success rate in managing rural areas is widely characterised by a lack of insight into appropriate roles for the management of rural water. In Western Kenya, of the many water projects implemented in the last 20 years, only a few of them lasted for more than five years from the date of initiation (Sei 2016:10). Furthermore, Kamruzzaman et al (2013:30) mention that “dependency on community spirit becomes weaker with the modernizing influences such as increased mobility through infrastructure development, more off land employment access, industrialization, rural-urban drift, increased wealth, materialism and individualism which erode the traditional structures and values”.

The community management model has internal and external problems. Internal challenges include poverty, strong traditions, misplaced priorities and unfavourable settlement patterns within the rural environment. External challenges include time constraints and sectoral development plans (Kamruzzaman et al 2013:30). Although the community management model runs smoothly at the initial stage, problems begin within ones to three years after the commissioning of systems, leading to the breakdown of the management system. In Tanzania, it was found that the functionality of water points is better sustained when fees are collected on a monthly basis for maintaining the water points rather than in response to a system breakdown (Joseph, Andres, Chellaraj,, Zabludovsky, Ayling & Hoo 2019).

Additionally, Harvey and Reed (2007) in Kamruzzaman, Said and Osman (2013:31) identify the “dependency on voluntary input, lack of incentives for community members, absence of appropriate replacement policy for committee members, lack of transparency, accountability and lack of regulations, lack of legal status and authority of the water committee, absence of liaison with local government institutions, and inability to replace the major capital items” as the main causes for the breaking down of the management system. Furthermore, water committee members agree to volunteer with a hope that one day they will get a paying job. However, “when such expectations prove unrealistic, committee members become disillusioned and disengaged from their roles” (Chowns 2014:88).

Whittington, Davis, Prokopy, Komives, Thorsten, Lukacs and Wakeman (2009) argue that most of the community-managed water supply schemes run with an acute financial shortage due to inefficient collection of tariffs from the beneficiary. Furthermore, Kleemeier and Narkevic (2010) identify other significant problems with the community management model such as minimal external support after construction; a dramatic drop of management capacity of the local water committee over time as the people lose interest, even though, initially committee members are trained extensively; there is no option to upgrade skills or move away; inefficient cost recovery for operation and maintenance which cannot meet the expenses of repair when needed; the unavailability of spare parts and the scarcity of trained manpower and tools for significant support, resulting in the infrastructure sitting idle for long periods of time.

Despite the failure of previous efforts, most studies conclude that community management is vital in the planning, construction and operation of rural water systems (Dyer 2006; Beyene 2012). According to Miruka (2016), various programmes implemented in the Zambezi valley fail because the local communities do not regard the water facilities as their own. It is found that an inadequate process of consultation with local people before the construction of such facilities leaves the community with the impression that they have no role to play in their management.

Dyer (2006:4) reiterates the importance of community management by emphasising that communities should be involved in the management of water rather than to be treated only as consumers, and the belief that only this can succeed where top-down methods have failed. Some studies still express scepticism, though, in agreement with the widely respected Richard Feachem, who cautions that there is insufficient evidence that community management is a sustainable model (Chowns 2015).

#### **2.4.2.3.1 Technical**

A study conducted in Malawi by Chowns (2015:265) finds that maintenance is rarely done in some instances and that long delays in organising repairs often occur where the community management approach is implemented. Mechanics in communities may not have the required skills and community involvement in technical decision-making may indeed lead to sub-optimal choices (Miruka 2016). Lack of adequate supervision contributes to technical failure and research in Indonesia has shown that community supervision is more ineffective as a quality control mechanism than professional audit

and inspection (Olken 2005). The capacity of communities to take up the responsibility for maintenance and repairs on their own has been questioned, and a shift towards emphasis on water as a service has occurred in the discourse in the sector over the last decade, with key figures calling for increased professionalisation of rural water supply (Lockwood & Le Gouais 2015).

Community management is expected to be a matter of consistent maintenance and fast, high-quality repairs, using locally held stocks of spare parts and local skills, but this, as reported in the study mentioned above by Chowns (2015:268), has rarely happened and repairs are slow and substandard.

#### **2.4.2.3.2 Financial**

There is an assumption that the financial sustainability of the water point will be ensured through regular user contributions (Chowns 2014:89). In reality, this is rarely the case. It is assumed that users will collect and save adequate funds to pay for maintenance and repairs, thus relieving the state of the burden of recurrent costs. However, the transfer of financial responsibility to users has been criticised. It is documented that users face significant difficulties in collecting and saving funds and that is a major determinant of non-functionality.

According to Harvey (2007), lack of trust and accountability are central factors related to people's low willingness to pay. In practice, user payments are generally insufficient to meet the actual costs of operation and maintenance; inconsistent payment mechanisms and exact amounts collected are usually much lower than needed.

In Uganda, there is widespread refusal to make payment. Users do not trust the water committee to hold their money. A lack of trust results in finances being managed on an ad hoc basis, meaning funds are collected only when the water point breaks down – a process that may take a long time (Golooba-Mutebi 2012). Generally, users are reluctant to pay for water, particularly if service levels are poor and when there is no visible impact of the user fees. Furthermore, Joseph et al (2019) and Haysom (2006) find in Tanzania that poor financial management is the most critical factor influencing water point functionality. In many cases funds contributed are much less than they should have been according to the reported scale and frequency of user charges and reported expenditures. A simple yet watertight system for financial management for a community operated and maintained water supply must be in place (Daemane 2015).

Furthermore, recent studies have indicated that about 20 per cent of water points are dysfunctional globally, while an additional 10 per cent are functional but with problems. Other studies suggest that in sub-Saharan Africa, about 30 to 36 per cent of water points are not operational (Joseph et al 2019). This raises a serious concern about the effectiveness and sustainability of the community management model (Hutchings, Chan, Cuadrado, Ezbakhe, Mesa, Tamekawa & Franceys 2015).

Reliance on users financing the water sector is inconsistent with the shift away from such fees in other public areas such as health and education under the auspices of efforts to meet the Millennium Development Goals (Chowns 2015). Broader development literature reveals a significant body of evidence showing that charging user fees reduces the take-

up of sanitation interventions such as insecticide-treated bed nets or chlorine treatment of drinking water. Furthermore, Chowns (2015) points out that preventive maintenance is relatively rare in Malawi.

A study by Bock et al (2009:124) in Namibia finds that no system of monthly payments is implemented. Money is only collected when the reservoir is drained, and diesel is needed to run the pump. Traditional authorities collect what the households are eager and able to pay in cash or kind (Bock et al 2009). Furthermore, the Water Supply and Sanitation Policy (Republic of Namibia 2008) highlights the social responsibility of making water available to the poor, but recovery of operation and maintenance costs from water users aroused controversial discussion. Amongst the concerns raised are that the recovery of costs is putting a heavy burden on water users. Some users feel that cost recovery is phased in too rapidly and training or awareness is inadequate. This has contributed to poor management and maintenance and is assumed to have had a negative effect on rural livelihood in Namibia. A study by Gbadegesin and Olorunfeni (2007) in Oyo State, Nigeria, found that community cohesion and cost recovery are some of the critical factors that prevent communities from managing the rural water supply effectively and efficiently.

The Water Resource Management Act 24 of 2004 prescribes that essential water supply services must be available to all Namibians at an affordable price. Although the Act and the Water Supply and Sanitation Policy (2008) make provision for support from government in terms of subsidies for low-income water users, clarity regarding these subsidies is lacking.

According to Moriarty et al (2013), in many sources (Schouten & Moriarty 2003; Harvey & Reed 2007; Bakalian & Wakeman 2009;) emphasise that some communities have shown that they can deal with many aspects of managing basic supplies, but struggle with others – particularly with those related to longer-term sustainability and inevitable asset replacement. Regardless of assessing most systems as working well, Bakalian and Wakeman (2009) find financial management to be generally poor and most communities focus only on the day-to-day operations of the schemes. There is no systematic accrual for everyday repairs or capital maintenance or system expansion resulting in many people in all schemes reverting to unreliable sources at least some of the time (Bakalian & Wakeman 2009). About 40 community-based service providers surveyed in Colombia can be classified as revealing adequate performance against 80% of the water systems in Bolivia which are (highly) likely to be sustainable. Realising and recognising both the opportunities and potential limitations of community management, two sets of responses have emerged in rural water supply over the last ten years or so. These are the professionalisation of community management and support to community-based service providers.

According to Lockwood and Le Gouais (2015) professionalisation of community-based management means moving away from the voluntary provision of water service towards a philosophy of service provision and working to agreed standards with greater transparency, accountability and efficiency. In the past, community-based management has long been established as the primary service delivery model for water provision to rural populations in developing countries. This model ,however, has limitations because

of the voluntary nature of the water committees who are responsible for maintaining water systems but lack legal recognition, skills and accountability to do so.

Furthermore, Lockwood and Le Gouais (2015) highlight that the following are amongst other common problems encountered in the community management model in many countries:

- informal structures are not recognised under local government by-laws and national legislation and policy
- there is the absence of contracting arrangements
- the informal legal position leaves the water committees unable to run water systems effectively
- the capacity of committees to run and manage water systems lacks continuity when trained volunteers leave the area or no longer have time or eagerness to undertake management on a voluntary basis.

Irrespective of the challenges and limitations in many countries, the model remains an essential mechanism for addressing the needs of rural populations. When some users do not contribute and the committee misuses the cash, they do not trust the committee (Chowns 2015:270).



#### **2.4.2.3.3 Institutional**

There is an increase of assessments on the institutional impact of community management. A considerable amount of sources have noted the dangers of localism, including the risks of elite capture (Mugumya 2013; Gaventa 2006). Indeed, communities may not be able to fulfil the responsibilities allocated to them. In a nutshell, consequently, community management does not always guarantee that the required skills are locally available and, even if does, there may be undesirable side-effects (Chowns 2015:269). Water user committees struggle to perform both technical and financial functions to standard. However, according to Bock et al (2009:116), fully centralised governance systems are inefficient compared to polycentric governance.

Chowns' (2015) study in the four districts of Malawi has shown, that both technical and financial performance under community management is weak. Maintenance is rarely undertaken and repairs are slow and sub-standard, as user committees are unable to collect and save funds. Despite these failures, though, community management has worked for the state as a means of offloading responsibility for public service provision.

In principle, community management is the best model for managing community resources (Schouten & Moriarty 2003; Bayene 2012; Kamruzzaman et al 2013). However, challenges such as inadequate communication between committees and community members, poor leadership, fraud and a general lack of management capacity need to be addressed (Daniel & Ibok 2014:68). There is a need for improvement in the

area of community participation in the implementation of the projects to strengthen the system and avoid premature failures (Schouten & Moriarty 2003; Lockwood 2004).

A study by Mugumya (2013) conducted in Uganda on the same subject, has revealed that community management of rural water supplies has faced some compelling challenges wherever it has been introduced. However, the success story of community water supply and management in Igbo-Oloyin shows that water supply provision and management can be even more sustainable and successful in rural areas than in urban areas if the community is involved in project planning and execution, while the government provides the initial infrastructure or capital outlay (Schouten & Moriarty 2003; Gbadegesin & Olorunfemi 2007). A study by Dyer (2006) examining the Alfred Nzo District Municipality community management model provides a valuable opportunity to investigate how community management can be institutionalised and what measures of success can be achieved.

Another study conducted in Swaziland by Okorie, Mabuza and Aja-Okorie (2001) and in Sri Lanka by Muthunayake (2010) identify several factors contributing to the unsustainability of rural water supply, and these include the unavailability of spare parts, imposition of inappropriate technologies, lack of local maintenance and operational capacity, lack of local community education and participation. weak community demand; and lack of coordination of sector agencies.

A study by Fielmua (2011) alludes to the fact that in many cases spare parts are scarce so that it becomes difficult to obtain them if communities are not consulted in the selection

of water type technology at the initiation of the project. Therefore, sustainable interventions in rural water supply and sanitation depend on finding solutions to these problems. The community's readiness to commit their time and money to these projects is critical to their sustainability. Training is identified as a vital task for proper management and sustainable community water supply in the studies by Schouten and Moriarty (2003) and Miruka (2016). They further find that training of committee members leads to improved relations between the community and the committee in Kenya. As previously indicated, the lack of capacity amongst the water point committees to perform their duties clearly, shows that training is crucial to the successful performance of these committees. Training of members of the community in stripping a pump, replacing washers and re-inserting pipes will lead to a substantial decline in the number of water-points not functioning (Miruka 2016).

A study by Cain et al in 1999 in the north-eastern part of the Eastern Cape as cited by Dyer (2006) examines operation and maintenance arrangements, levels of service, tariff structures and community attitudes and finds that there is substantial local support for village water committees to act as water service providers. In all but one of the water schemes investigated in their study are in good working order, with basic maintenance being carried out by local operators, but outside support was needed for technically more complex maintenance as well as for bookkeeping. The study by Cronk and Bartram (2017) finds that water points managed by private operators in Tanzania and Nigeria are more functional than those operated by the local communities. In South Africa, however, a study conducted on the effectiveness of water provision in rural areas find that cost

recovery was a significant challenge facing water schemes managed by communities (Van Schalkwyk 2001:31).

Kwashie (2007:2) and the International Reference Centre (2004) mentioned that, in the past, many of the water supply systems that were constructed break down soon after implementation as a result of poor operation and management of maintenance. It thus becomes sufficiently clear that sustainable water provision cannot be achieved without community participation; not in the provision of the primary inputs only, but also in the planning of programmes, in the selection of appropriate technology, systems management, and the establishment of local management committees (Mugumya 2013:57). According to Joseph et al (2019) water points technology also affects their functionality.

These realisations lead to a conceptual shift in the participatory paradigm to that of the community ownership and management approach. The concept of community management drew support from intellectual expositions on the “bottom-up” approach. According to the IRC (2004) and Mugumya (2013), this approach emphasises that communities should not just be involved in the inception of the system, but should also accept ultimate responsibility for and ownership of the entire life cycle of the system, including planning, construction, financing and management. These factors are critical to the sustainability of water facilities.

However, in different parts of the world, central government and external support agencies are responsible for planning, constructing and maintaining rural water supplies,

with little involvement of the private sector except for the foreign consulting firms hired to run projects and international contractors hired to drill boreholes (Osborne & Strokosch 2016; Salim 2002). This system is not sustainable for water provision and management. It stresses the importance of the need to involve communities in the process of acquisition and management of water facilities. Hence, community participation is identified as one of the critical strategies of the International Drinking Water Supply and Sanitation Decade (IDWSSD) (McCommon et al 1990; Mugumya 2013).

Another limitation to community-based management evolves around the concept of support in service delivery. The study by Dyer (2006:58) in the Alfred Nzo District Municipality recognises that the majority of community-based service providers are unable to manage their water supplies without some form of external support. In practice, the majority of community-based service providers do receive some external support, as reported by Moriarty et al (2013) and Whittington et al (2009) in the World Bank study that took place in Bolivia, Ghana and Peru.

Well-functioning water services are essential requirements for all human activities. In realising the goal of providing potable water, water service providers, especially those in poor rural areas, face considerable constraints (Dyer 2006:10). Some of these constraints derive from the poverty of the community members and lack of resources. As a result, the relative lack of financial and human resources faced by the poorer rural water supply services limits their ability to pay for water and to hire suitably skilled staff (Dyer 2006:12). This leads to a lack of management and technical capacity within the community. Hence,

outsourcing certain technical and management functions is a rational strategy the water service provider can adopt.

Furthermore, Schouten and Moriarty (2004:2) indicated that the causes of failure are multiple, with some coming from within the community due to lack of community cohesion, a lack of management skills, unrepresentative water committees, technology that overstretches capacity or ability to pay, lost capacity due to death or migration, weak demand caused by alternative traditional water sources and financial problems. Meanwhile, external factors play a role as well: a non-existent or inadequate supply chain, a lack of standardised technologies, poor design and construction faults, interfering politicians, and source depletion.

## **2.5 Conclusion**

The polycentric approach and institutional co-production theories are adopted to provide the framework for this study. The study recognises the involvement of many stakeholders in the management of rural water provision. A one-size-fits-all solution to the challenges in rural water supply cannot, therefore, be the way forward. A more flexible and pragmatic approach that meets the rights, demands, desires and needs of diverse groups of rural citizens should be developed, taking into consideration the given context.

There has been a paradigm shift in different parts of the world in water provision and management. Governments have moved away from being the sole provider of services. Instead, they have embraced the concept of community management, whereby

community participation is encouraged in decision-making and management of resources.

Although there are shortfalls in the community management approach, there is great optimism that it will lead to more efficient and effective water provision. It is emphasised that the community can play a critical role if it is allowed to participate throughout the project cycle of water provision. Sources on this topic caution that the issue of participation should be addressed in its entirety and not in separate sections. As an example, participation is not effective if the implementation agency or government retains control over the detail of implementation or when issues concerning physical infrastructure and technology are addressed more effectively than issues of social organisation necessary for managing the project.

## **CHAPTER 3: RURAL WATER SUPPLY IN NAMIBIA**

### **3.1 Introduction**

This chapter describes the scope of Namibia's application of the community management model for the provision of water in rural areas. It also reviews the structure and performance of rural water supply in Namibia. The chapter begins with the history, development and evolution of rural water supply in the country.

The chapter then examines the water governance and institutional management by looking at the impact on the effectiveness of the community-based management model on rural water supply and sustainability. A discussion of the legislative framework for rural water provision in the country are also carried out and a brief report on the historical background of the Ohangwena region, the area of the study, is given.. The chapter concludes with information about the current management model used in the provision of water in Namibia and rural areas in particular.

### **3.2 Namibia**

According to figures from the 2014 United Nation Human Development Report, Namibia ranked 127 out of 187 in the Human Development Index, whereas in 2019 it ranked 130 out of 189 countries (UNDP's Human Development Index 2019). Life expectancy at birth (2013) was 64,5 years, and adult literacy (2012) was 7,5% (Ruppel & Ruppel-Schlichting 2016:2). According to the International Labor Organization (ILO) (2016), 43,4% of

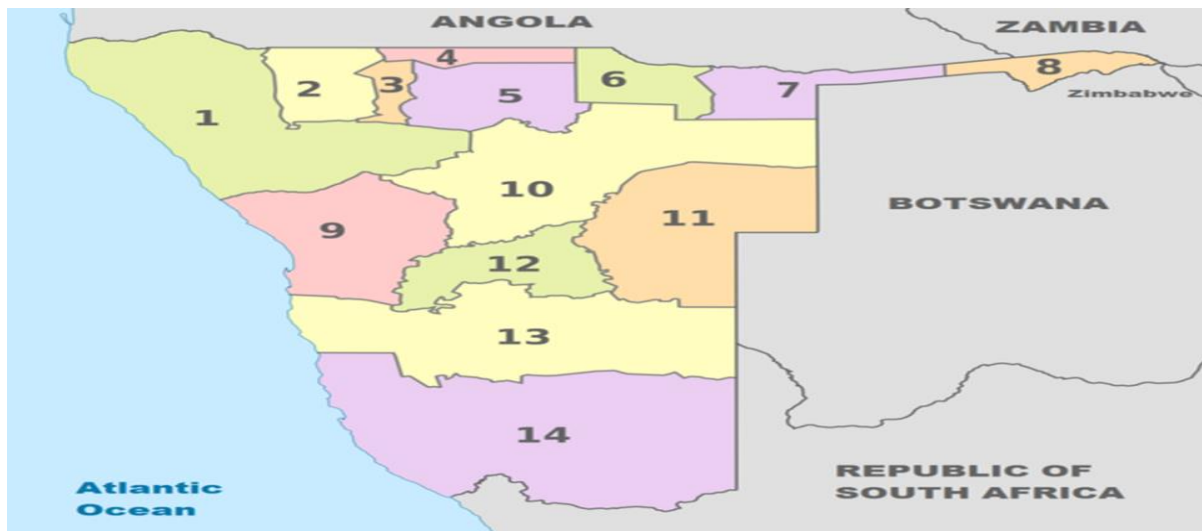


Namibia's youth are unemployed – nearly three times as many as the global average. In 2018, the broad unemployment rate in Namibia was 33,4% (National Statistics Agency, 2019 ).

The following section provides an overview of Namibia's geographic, economic, social and historical demographics well as political aspects.

### 3.2.1 Geographic aspects

Namibia is located on the western side of the southern African subcontinent and covers an area of 824,300 square kilometres. It is surrounded by the Atlantic Ocean in the west and is a neighbour to Angola and Zambia in the north, Botswana in the east and South Africa in the south and east.



**Figure 3-1: Map of Namibia**

The country is named after the Namib Desert, one of the oldest deserts in the world (Republic of Namibia 2014:1). The Namib Desert extends along the entire west coast of the country, and the Kalahari Desert runs along the south-eastern border with Botswana (Heyns 2005:89; Republic of Namibia 2014:1). Because of its location between the two deserts (Namib and Kalahari), Namibia has the lowest rainfall in sub-Saharan Africa (Ruppel & Ruppel-Schlichting 2016:25). Namibia is prone to drought conditions due to its dry climate, which means there are scarce freshwater resources. Despite a good improvement in water provision in the country, generally, the quality of water is still deficient in rural areas.

Overall, Namibia lies in a summer rainfall area, with limited showers beginning in October and continuing until April (Republic of Namibia 2014:1). Although Namibia has made great strides in providing its rural population with safe drinking water, significant improvements and much work are still required.

### **3.2.2 Historical and political aspects**

Namibia became independent from South Africa on March 21 1990, following the Namibian War of Independence after almost a hundred years of colonial rule by Germany and then by South Africa. Namibia had become a German Imperial protectorate in 1884 and remained a German colony until the end of World War 1. On 17 December 1920 South Africa took over the administration of South West Africa (Namibia) in terms of Article 22 of the Peace Treaty of Versailles (which includes the Covenant of the League of Nations) and mandated agreement of the League of Nations (Ruppel & Ruppel-

Schlichting 2016:1). Furthermore, in 1946, the League of Nations was replaced by the newly formed United Nations. In 1966 the South African mandate over Namibia was officially revoked by the United Nations General Assembly and in 1978 the United Nations Security Council passed UN Resolution 435, which planned the transition toward independence for Namibia. However, it was only in 1985, after internal violence and uprisings, that South Africa established an interim administration in Namibia.

The country has a multi-party democracy and holds regular general elections every five years. A two-house legislature consists of the National Council (three members are chosen from each regional council) and the National Assembly. Namibia is a member of the United Nations, the Southern African Development Community, the African Union and the Commonwealth of Nations. Hence, its water resource management policies are anchored in the South African Development Council (SADC) Declaration and Treaty, Southern African Vision for Water, Life and Environment, Revised SADC Protocol on Shared Watercourses and the Dublin Principles.

In terms of administration, the country is divided into 14 regions: Zambezi, Kavango West and Kavango East, Kunene, Ohangwena, Omusati, Oshana and Oshikoto in the north; Omaheke, Otjozondjupa, Erongo and Khomas in central Namibia and Hardap and Karas in the south. The capital is Windhoek, located in the Khomas region.

### **3.2.3 Demographic aspects**

According to the latest available Population and Housing Census in 2011, the country's population stood at 2,113,077, with an increase of 1,5 per cent over the last ten years.

Given the presence of the Namib Desert, Namibia is one of the most sparsely populated countries in the world, with the population density estimated to be 2,6 persons per square kilometre. Regional population densities differ significantly, with nearly two-thirds of the population living in the four northern regions and less than one-tenth residing in the south. Despite rapid urbanisation, Namibia is still mostly rural, with about four in ten people living in urban areas. The urban population has gradually increased over the last two decades, from 28 per cent in 1991 to 43 per cent in 2011. About 57 per cent of the Namibian population resides in rural areas (NSA 2017).

Despite English being the country's official language, more than 11 indigenous languages are spoken in Namibia, nearly 50 per cent of the population speaking Oshiwambo (NSA, 2017).

The predominant feature of Namibia's water resources is its scarcity. Rainfall is seasonal and can vary tremendously over time and in concentration. Namibia has a dry to semi-arid climate with an average annual rainfall ranging between 25 mm at the coast to more than 600 mm in the Zambezi region in the north-east. Only the north-eastern area of the country, covering about 25%, has more than 350 mm of rain annually.

Namibia is the most arid country in sub-Saharan Africa (Du Toit & Squazzin 1995) and its arid climate coupled with high evaporation rates, have a severe impact on water availability and reliability. All rivers in the interior are ephemeral. The National Development Plan 5 (2017b:36) stresses that water scarcity continues to be a severe constraint in achieving the economic, environmental and social development objectives.

The combined influence of low, erratic rainfall and high evaporation rates result in the consistent occurrence of drought. This can be very local but generally occurs throughout the country.

### **3.2.4 Economic and social aspects**

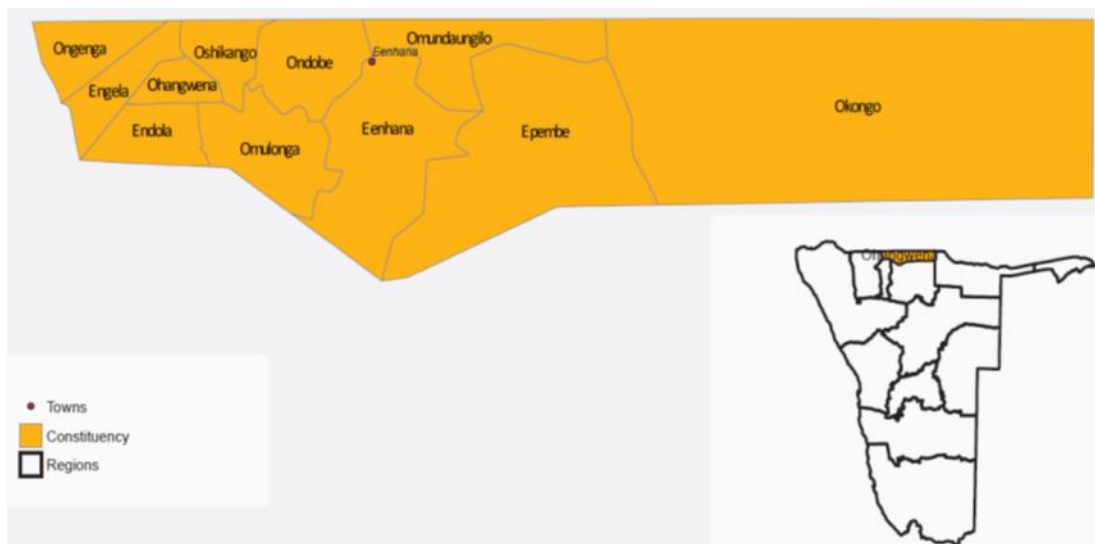
According to the Bank of Namibia economic outlook (July 2019), the domestic economy is expected to fall into a deeper contraction during 2019, before returning to positive growth in 2020. The domestic economy is projected to contract by 1,7 percent in 2019 before recovering to positive growth of 0,8 percent and 1,2 percent in 2020 and 2021, respectively. The projected contraction of 1,7 percent for 2019 represents a further deterioration from a mild contraction of 0,1 percent in 2018. The local economy could not grow at the expected rate, however, due to unfavourable economic conditions in the world and severe drought in the country. Despite many challenges, economic growth was observed in some sectors, especially in the agricultural industry, which is the mainstay of the economy. The sector recorded a tremendous growth of 42 per cent despite the drought experienced in 2013 (Republic of Namibia 2014). The drought led to a decrease in the local production of crop farming, hence the need to import food items to feed the

country's population. Almost half of the Namibian populace depends on subsistence farming (Ruppel & Ruppel-Schlichting 2016:3).

In 2014, Namibia was ranked as a middle-income country with a Gross Domestic Product (GDP) of \$13,43 billion (Ruppel & Ruppel-Schlichting 2016:3), but has one of the most skewed distributions of income per person in the world. The disparities in per capita income among the population are the result of the unbalanced development that characterised the Namibian economy in the past. In 2018, the broad unemployment rate stood at 33,4% (National Statistics Agency 2019). Economically, Namibia remains overly dependent on South Africa, its most important partner in the SADC. The cost of water in Namibia is among the highest in Africa (Haidula 2016).

### **3.3 The Ohangwena region: description of the study area**

Namibia is composed of fourteen administrative regions. The Ohangwena region, one of the fourteen regions of Namibia, is located in the north of the country, covering a total of 10 582 square km and bordering on the Cunene Province of Angola in the north, also sharing a small border with the Cuando Cubango Province in the far north-east.



**Figure 3-2: Administrative map of Ohangwena region**

Source: Ohangwena 2011 Census Regional Profile

Domestically, Ohangwena shares borders with Kavango, Oshikoto, Oshana and Omusati regions. Eenhana is the largest town and the capital of the Ohangwena region. The region has 11 constituencies which are: Eenhana, Endola, Epembe, Ohangwena, Okongo, Omundaungilo, Ondobe, Ongenga, Oshikango and Omulonga.

The 2011 Namibia Population and Housing Census results showed that Ohangwena had a population of 245 446, of which 133 316 were women, and 112 130 were men. Ninety per cent of the population resided in rural areas, while 10 per cent of the population lived in urban areas. There were 43 723 households with an average of 5,6 persons per household. The region has the highest population density in the country, with an estimated 90 per cent of the population living in rural areas. The latest National Population Census in 2011, indicated that about 56 per cent of the households in Ohangwena had

access to safe water. The results further show that about 88 per cent of households in urban areas had access to safe water, compared to about 51 per cent of houses in rural areas. With regard to unsafe water, 17 per cent of households in rural areas relied on rivers, dams or streams as their primary source of water for cooking and drinking. At the constituency level, it was observed that Epembe and Omundaungilo had the lowest percentages of households with access to safe water, at slightly over 20 per cent (Republic of Namibia 2011).

With regard to agricultural activities, about 79,2 per cent of the Ohangwena region is dependent on crop farming, while horticulture (0,6%) was the least common agricultural activity. Adequate water supply is an essential requirement for economic activities and human welfare within all communities (Silfverberg 1994).

### **3.4 The evolution of rural water supply in Namibia**

Traditionally, water provision has been a function of the state in Namibia. The provision of rural water has passed through different systems and management. Before Namibia became a German colony in 1884, rural water was managed by traditional communities and chiefdoms or kingdoms. During this pre-colonial period, traditional leaders and elders successfully mobilised community members to participate in community self-help projects such as digging the boreholes and repairing the old ones (Mugumya 2013; Bock et al 2008). Trust and high levels of social cohesion and unity attributes motivated communities to support one another. Unfortunately, these important dynamics changed during and after the colonial period.



However, at the establishment, of the Namibia state, the government took up a different model for water provision. A study by Karuaihe et al (2014:334) and Bock et al (2008:03) find that Namibia has taken an integrated approach in addressing the issue of water provision by ensuring improved water access to the population. According to Bock et al (2008), access to and availability of water under the apartheid regime was seen as essential only for one racial group. Hence, after independence, the government prioritised water service provision by enshrining it in the Constitution, with access to water classified as a fundamental human right (Harvey & Reed 2004; UN 2010). In Namibia, water is provided to communities through the Community Based Management (CBM) programmes, with communities taking responsibility for managing water points on a daily basis, while the government is responsible for major repairs. The water governance structure that presently exists in Namibia was primarily put in place following the amendment of laws and policies to address inequality. A number of drivers led to water reform. The reform has brought significant changes concerning the water governance system and actor roles.

By the time Namibia was proclaimed a German protectorate in August 1884, no institution responsible for water matters had existed, nor was water policy or legislation on water in place (Heyns 2005:93). It was only after it was allocated by the League of Nations to the Union of South Africa for administration at the end of the First World War that an irrigation department with a drilling division was created for the first time in 1921. In 1925 it was realised that irrigation had extremely limited potential, hence its integration as a water division into the Department of Works of the then newly established South West Africa

Administration (Heyns 2005). From there the water division has expanded its activities to develop farm dams for the impoundment of water during the rainy season, to construct hydrological gauging stations and to find groundwater. It soon became necessary to regulate the diversion, storage and use of water and a Water Ordinance was promulgated by the Legislative Assembly of the South African Administration in 1932 (Heyns 2005). This ordinance made provision for the institution of a water board to advise the Secretary for South West Africa on water issues. This laid the basis for the development of technical water policy for managing water resources.

When South Africa implemented its homeland policy, the responsibility for the provision of rural water services was given to those homelands. During the process of South Africa preparing for Namibian independence in cooperation with the United Nations, this process led to the creation of a minister's council and the creation of new government service in 1980. A new Department of Water Affairs was created, which was utterly separated from its mother department in South Africa. Neither South Africa nor South West Africa had any formal, generic water policy document for Namibia up to 1990 and most of the water policy decisions remained in the minutes of the water board meetings or the institutional memory of the board members (Heyns 2005:95). Historically, the rural water supply was characterised by racially-based inequality and strong subsidising (Ruppel & Ruppel-Schlichting 2016:173). This has contributed to a low-quality water sector, making the rural population highly dependent on government hand-outs and unaware of sustainability considerations.

Before Namibia's independence in 1990, improved rural water supply infrastructure was the responsibility of the second-tier authorities at the regional level and by the then Department of Water Affairs at the national level. At the time of independence, the layout of the extensive pipeline network to supply the population of the present Oshana, Oshana, Oshana and Oshikoto regions with safe water had been designed and the main supply lines built. By independence in 1990, access to safe water for rural communities in communal areas was estimated at 43%. From 1978 to 2003, the World Bank loaned roughly US\$1,5 billion to Namibia's rural water supply sector (Sasman 2010).

From 1990 until 1992, the responsibility for operating and maintaining the rural water supply infrastructure and for the community aspects of rural water supply was with the Department of Agriculture and Rural Development (DARD) in the Ministry of Agriculture, Water and Rural Development. During 1992, a decision was taken to give responsibility for rural water supply to the Planning Division in the Department of Water Affairs (DWA). This implied the take-over of about 1 400 rural water schemes scattered all over the country and more than 500 employees. Operating from the Planning Office in Oshakati, several new pipeline projects were started with communities involved in digging and back-filling of pipe trenches. Full responsibility for rural water supply was transferred from DWA to the newly created Directorate of Rural Water Supply (DRWS) in July 1993. Staff members working on rural water supply were transferred to the DRWS.

Several issues dictated institutional reforms in the water sector in Namibia. When the new government started to function, it was realised that there was an absence or duplication of water services in some cases, inadequate services in other cases, and a complete lack

of coordination between the different ministries in most cases. As a result, a new water policy was necessary to improve water management to meet the needs of a developing nation in the face of water scarcity (Heyns 2005:95). A new Water and Sanitation Sector Policy (WASP) was developed to cater for the needs of all Namibians.

The social responsibility of rural development and the rural water supply functions of the eleven homeland authorities were centralised and allocated to the Department of Agriculture and Rural Development in the ministry. Lack of technical capacity to attend to the difficulties of rural water issues in an arid environment has necessitated the need for policy adjustment and development (Heyns 2005:95).

On 21 September 1993, the Cabinet approved the new Water and Sanitation Sector Policy (Republic of Namibia 1993). This policy deals with rural water supply, bulk water supply and sanitation. Responsibilities for the many aspects of water and sanitation were assigned to specific organisations with a steering committee (Water and Sanitation Coordination Committee – WASCO) overseeing the implementation of the policy and reporting to the Minister of Agriculture, Water and Rural Development on progress. Due to the poor performance of the previous homeland authorities, it was then decided that the decentralised rural water supply functions should be controlled from the centre where technical capacity was available to assist the regions (Heyns 2005:97). The provision of water to rural communities was centralised.

However, this shift of responsibilities away from the local communities was not only politically unacceptable but an impractical arrangement for a country with a large surface

area and small localised population concentrations. A policy of decentralisation was therefore adopted, and the country was divided into 14 regions, all with regional authorities and governors in charge of them.

The decentralisation policy strengthened the system of participatory democracy and allowed people from each geographically defined electoral area to elect their own leaders from the village level to the regional level. This arrangement led to an improvement in the delivery of safe water to rural areas as the rural water supply functions reverted to the regions.

With regard to the rural water sector, the policy provides detailed recommendations for the role and responsibilities of both the Government and the rural communities in communal areas concerning the management of rural water supply infrastructure and cost-sharing. The policy also recommends the establishment of an organisation solely responsible for the rural water supply sector, namely the Directorate of Rural Water Supply (DRWS).

After an extensive consultation process with national, regional and traditional leaders, combined with a survey of the rural communities, the community-based Management of Rural Water Supply (CBM) strategy was formulated and approved by Cabinet in June 1997. At the moment, the Directorate of Rural Water Supply is responsible for all water resource regulatory and water supply in rural Namibia.

Since the implementation of community-based management, 1 800 water points have been handed over to the community, but the total implementation of their roles was progressing slowly (Namibia-European Community 2004). Therefore, one of the long-term aims of Vision 2030 is to improve the quality of life of the people of Namibia. The quality of life of rural communities could be significantly enhanced through access to potable water supply (Ruppel & Ruppel-Schlichting 2016:32; Republic of Namibia 2009). Since 2007, rural water supply functions have been delegated to the regional councils throughout the country. This delegation of functions is in line with Namibia's 1997 Decentralisation Policy and the Decentralisation Enabling Act 33 of 2000. This was done with a quest for service improvements.

### **3.5 The legislative framework of the Namibian rural water supply**

The administration of water affairs in Namibia is based on some pillars, such as the Constitution of the country, water policy, water law and water regulations promulgated in terms of the water legislation (Republic of Namibia 2009). This section covers the laws, policies and regulations governing the water sector and what are considered to be the critical success factors for water governance in Namibia.

#### **3.5.1 Laws and policies governing the water sector**

Immediately, after independence, the country embarked on a number of reform processes and fundamental changes to legislation and regulation of the water sector to replace outdated apartheid-era Acts and policies that governed the water sector and did not

conform to the political order of the time (Simataa 2010:8). Water reforms became crucial because, historically, Namibian rural water supply was characterised by racially-based inequality and strong subsidising. This created a poor quality water sector, making the rural population very dependent on government hand-outs and unaware of sustainability considerations. The reform of rural water supply basically changes the paradigm of “control and command” by empowering water users and increasing water management efficiency (Bock & Kirk 2006). The main backbones of the reform are polycentrism and cost recovery. The reformed rural water supply in Namibia is based on the principles of maximum involvement of users, delegation of responsibility to the lowest possible level and cost recovery (Ruppel & Bethune 2011; Republic of Namibia 2008).

As a result, with the increasing demand for water surpassing supply, the Namibian government realised that water is a finite resource that had to be managed and conserved accordingly (Karuaihe et al 2014:335).

Some of the key documents that guide the water sector in Namibia, together with relevant amendments and regulations that constitute the limited, primary framework for the management of the water sector are listed below:

- The Constitution 1990
- The Water Act 54 of 1956
- Water and Sanitation Policy 1993
- The Namibia Water Corporation Act 12 of 1997

- The National Water Policy White Paper 2000
- The Water Resource Management Act 24 of 2004
- The Water Supply and Sanitation Policy 2008
- The Integrated Water Resource Management Plan 2010
- The Water Resource Management Act 11 of 2013

The main reason for the development of the documents mentioned above was to ensure reasonable supply and access to clean water by moving away from a water supply to a water demand management approach. In addition, those documents were developed to ensure that water resources are utilised in a sustainable and environmentally sensible manner (Remmert 2016).

The assessment of the water sector policies and institutions conducted under the Food and Agriculture Organization of the United Nations (FAO) in 2012 concluded that amongst other things, the broad priorities of the Namibian water sector are to achieve full participation of all the stakeholders in water issues and to develop a robust institutional capacity from the local to the national level. The new government emphasise human rights and equal access to resources and opportunity for all (Remmert 2016:4). Generally, Namibia possesses a relatively comprehensive and progressive policy and legal framework regarding the water sector. The challenge to this progressive legal framework is the practical implementation, a lack of human capacity and inadequate funding to meet identified needs.



The Constitution was accepted and adopted by the Namibian people as the fundamental law of the sovereign and independent Republic in 1990. The Constitution emphasises the protection, utilisation and management of natural resources on a sustainable basis for the benefit of all (Republic of Namibia 1993; Simataa 2010; 36; Karuaihe et al 2014).

The Constitution of the Republic of Namibia, Article 95 clearly states that:

The state shall actively promote and maintain the welfare of the people by adopting policies aimed at maintenance of ecosystems, the essential ecological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future.

Furthermore, Article 100 in the Constitution clearly states that:

Land, water and natural resources below and above the surface of the land and in the continental shelf and within the territorial waters and the exclusive economic zone of Namibia shall belong to the State if they are not otherwise lawfully owned (Republic of Namibia 1998).

Overall, the Constitution of the Republic of Namibia (1990) affirms that state ownership and the responsibilities of the state extend from identification of water sources. The state is responsible for the development of water sources, purification of water and bulk distribution, quality control and assessment and conservation and protection of the resource as well as research and monitoring. Article 100 has brought some confusion regarding the ownership of water in Namibia (Pinto 2014: 28). However, the article goes

on further to give a provision that the state can only own water if an individual or any other legal entity does not legally own it (Pinto 2014:1) and this creates legal problems.

The Water Act 54 of 1956 which is often referred to as the Old Act was enacted by the then apartheid regime of South Africa and selectively applied to the then South West Africa (Namibia) by virtue of section 180 of the same Act (Pinto 2014). The main purpose for passing the Water Act 54 of 1956, as its preamble states, was to consolidate and amend the laws relating to the control, conservation and use of water for domestic, agricultural, urban and industrial purposes. The Act also aims to make provision for the control of certain activities on or in water in certain areas. It is clear that this Act does not apply to Namibia in its entirety since certain sections were suspended or never applied to Namibia. As a result, this Act did not cover all the areas of Namibian water law.

Furthermore, the Water Act 54 of 1956 distinguish between private and public water. This dichotomy might be unconstitutional in the current constitutional dispensation because whereas the Act provides for private and public water, the Constitution regards natural resources as common resources thus they constitutionally belong to the state unless otherwise lawfully owned (article 100).

It is for these reasons, soon after the country become independent in 1990, the government embarked on a number of reforms processes and fundamental changes in legislation and regulations of the water sector to repeal Acts and Policies governing the water sector which did not conform to the political order of the time. Due to the fact that the Water Resource Management Act 24 of 2004 and the Water Resource Management

Act 11 of 2013 have been promulgated, but have not been put into operation in Namibia, the Water Act 54 of 1956 remained in force.

Since independence, Namibia formulated three water policies, namely the Water Supply and Sanitation Sector Policy (WASP) in 1993, the National Water Policy White Paper referred to as the National Water Policy (NWP) in 2000 and the Water Supply and Sanitation Policy (WSASP) in 2008.

The 1993 Water and Sanitation Policy deals with water supply and sanitation issues. It also deals with the cost recovery. The policy promotes the supply of water at an affordable cost to all Namibians (Ruppel & Ruppel-Schlichting 2016:38). The National Water Policy 2000 accepts water as an economic good but recognises the importance of subsidies for the provision of water to the poor, including access to a basic minimum quantity of clean water, which is often seen as a fundamental human right (Republic of Namibia 2009; UN 2010). The Water Supply and Sanitation Policy adopted in 2008 replaced the WASP of 1993. However, its principles are in line with IWRM, including a strong focus on water demand management. According to the United Nations (2018:15), IWRM defines the enabling environment for integration, the need for a robust institutional framework (including participation), the need for management instruments for effectively managing water resources (including those shared across national boundaries), and financing requirements for water resources development and management.

Currently, the National Water Policy White Paper 2000 (NWP) and the Water Supply and Sanitation Policy 2008 (WSASP) are the central policies guiding the water and sanitation administration and development in the country.

Cabinet approved the National Water Policy White Paper 2000 in 2002. It was developed to guide water resource management in Namibia. The White Paper provides a framework for equitable, efficient and sustainable water resources management and water services and stresses sectorial coordination, integrated planning and management and resource management aimed at coping with ecological and associated environmental risks (Ruppel & Ruppel-Schlichting 2011:130). The White Paper forms the foundation of the Water Resource Management Act 11 of 2013.

Important to mention in this policy is the recognition of the need for inter-sectoral coordination among all stakeholders involved in using and managing water resources. The salient principles contained in the policy include ownership of water, integrated management and planning, equity, stakeholder involvement, decentralisation, roles of institutions and capacity building (Ruppel & Ruppel-Schlichting 2011).

With regard to potable water and sanitation, the National Water and Sanitation Policy (2008) sets out the following overall sectoral policy statement:

Essential water supply and sanitation services should become available to all Namibians and should be accessible at a cost which is affordable to the country as a whole.

This equitable improvement of services should be achieved by the combined efforts of the government and the beneficiaries, based on community involvement, community participation and the acceptance of mutual responsibility.

Communities should have the right, with due regard to environmental needs and the resources available to determine which solution and service levels are suitable. However, beneficiaries should contribute towards the cost of the services as increasing rates for standards of living exceed the levels required for providing basic needs (WASP 2018).

Overall, the National Water Supply and Sanitation Policy (2008) is the main policy that focuses on managing water use and developing the water resources in an integrated and sustainable manner, and on providing water of adequate quality to present and future generations. It also places emphasis on participation and collaboration between the government and beneficiary communities (Republic of Namibia 2008:3). The government also recognise that a safe water cycle is not complete unless water-related hygiene practices are adequately adhered to by the water users (Mugumya 2013:22), hence the inclusion of sanitation in the policy. The policy promotes sustainable water utilisation by developing reliable and accessible source of safe water through an affordable cost, promotion of water-efficient technology, public information and awareness programmes, information sharing and co-operation between parties (Republic of Namibia 2008:4). Despite all these good intentions, the general public is not satisfied with the affairs of rural water supply in the country.

There is also a mention of subsidising those who cannot afford to pay for the full cost of water. However, not all communities can receive subsidies. The formula applied is not clear. Generally, the policy aims at ensuring equitable access to water resources sufficient to maintain life, health and productive activities for every citizen (Ruppel & Ruppel-Schlichting 2011:129).

In 1997 the government introduced institutional reforms aimed at sustainable water resource use to ensure sustainable socio-economic development (Karuaihe et al 2014:335). The water sector in rural communal areas is the main focus of the reform, especially where communities were not involved in the management of their natural resources before independence. Water is scarce in Namibia, and as such, it is critical that water is managed by those who use it and understand its use. Although not come into force, the Water Resource Management Act 24 of 2004 provides the legal framework for the implementation of the reform (Bock & Kirk 2006). However, according to Pinto (2014) the Water Resource Management Act 24 of 2004 has clear constitutional violation within its provisions. That could be the reason which led to the Act not being put into operation to date.

The Namibian government has been credited for reforming and developing progressive policies in line with the Constitution and conforming to international best practices and expanding potable water access, especially in rural areas, since independence (Remmert 2016:1). However, the water sector has been hampered by poor policy implementation, which has resulted in severe under-investment, limited capacity and technical skills, poor coordination among stakeholders and weak regulation and enforcement.

The Water Resource Management Act 24 of 2004 was ratified by parliament and promulgated in the Government Gazette in 2004. The Act 24 of 2004 was based on the National Water Policy and provided for the management, development, protection, conservation, and use of water resources. The Act introduced equitable access to water resources for all population groups in Namibia. It provided an integrated, enabling legislative framework within which Namibian water resources could be managed, and water services be provided. The objective of the Act was to ensure that Namibia's water resources are managed, developed, protected, conserved and used in ways, which are consistent with or conducive to certain fundamental principles set out in section 3 of the Act.

Furthermore, the Act provided for the establishment of Water Point User Associations at community level, consisting of those rural community members who permanently use a water point. Their function was defined as to operate and maintain the water point in question and to make decisions about water use regulations. The Act provided for a Water Point Committee to monitor and enforce compliance with such regulations and for the establishment of a Water Resources Management Agency as well as Basin Management Committees to manage water resources sustainably.

According to Remmert (2016) it was expected that the Act 24 of 2004 would repeal the Water Act 54 of 1956. Even though it was approved and published in the Government Gazette, it has never come into force (Ruppel & Ruppel-Schlichting 2016:165). The Water Resource Management Act 24 of 2004 have not been put into operation in Namibia for several reasons. Firstly, it has never come into operation as the Minister has not

determined a date for the Act to come into operation as required by Section 138 of the Act. Secondly, the Act had some clear constitutional violation (e.g. water ownership) within its provisions. This is in contradiction to Article 100 of the Namibian constitution. That could be the reason which led to the Act not being put into operation.

In 2013 the government approved and published in the Government Gazette, the Water Resource Management Act 11 of 2013 which also have not been put into operation in Namibia to date. The Act has not yet come into operation as the Minister has not yet determined a date for the Act to come into operation as required by Section 134 of the Act. Regulations to implement the Act are currently under preparation. Once in operation, the Act repeals both, the Water Resources Management Act No. 24 of 2004 (which had de facto never come into force) and the Water Act No. 54 of 1956 as a whole.

Although not operational, the Water Resource Management Act 11 of 2013 (1) provides the legal framework for the implementation of water reform. The Act provides for the management, protection, development, use and conservation of water resources, for the regulation and monitoring of water services and incidental matters. The aim of this Act includes ensuring that Namibia's water resources are managed, developed, used, conserved and protected in a manner consistent with or conducive to specific fundamental principles specified in section 3 of the Act. These include, among others, equitable access to safe and sufficient drinking water, the maintenance of the water resource quality for ecosystems and the promotion of the sustainable development of water resources based on an integrated water resource management plan which



incorporates social, technical, economic and environmental issues (Ruppel & Ruppel-Schlichting 2016).

Similar to the Water Act 54 of 1956, the Water Resource Management Act 11 of 2013 provides for the establishment of the Water Advisory Council, a Water Regulator and Water Tribunal, as well as Basin Management Committees. The function of the Water Regulator is currently carried out by NamWater under the Namibia Water Corporation Act 12 of 1997, section 7. There is an overlap of responsibilities between the Namibia Water Corporation Act 12 of 1997 (section 7) and the Water Resource Management Act 11 of 2013 (section 12) with regards to tariffs fees setting and charges of the water service providers. Furthermore, the Basin Management Committee has several functions, including the promotion of community participation.

One part of the Act has dedicated the management of rural water supply with the option to establish Water Point Committees and local water committees to be entrusted with the responsibility of managing and controlling the supply of water at any rural state waterworks (Ruppel & Ruppel-Schlichting 2016:169).

The reformed legislation (still to commence) emphasises community involvement and participation, thus enhancing community-based organisations to assume responsibility for the management of water resources. The two primary sources of water supply in Namibia are: (1) boreholes, under the Directorate of Rural Water in the Ministry of Agriculture, Water and Forestry and (2) the pipeline scheme, provided by the Namibia Water

Corporation and the Directorate of Rural Water Supply in the Ministry of Agriculture, Water and Forestry, both managed by water point committees.

The implication of the non-commencement of the Acts: continuous implementation of laws which have some provisions which does not resonate with the constitution. The delineation of roles are not clear due to legal uncertainty and as such, there is an overlap of roles which could lead to conflict between the actors, such as Section 7 of the NamWater Act 1997 and section 12 of the Water Resource Management Act 11 of 2013 provides for both NamWater and the Ministry of Agriculture, Water and Forestry to set tariffs and granting rights to customers. Although management structure and a legal framework existed such as the Water Resource Management Act 11 of 2013, legally it is not yet operational.

In Namibia, rural water management rights have been handed over to the communities as part of the government's community-based management programme based on a demand management approach. Even though this programme has empowered some communities to manage their water points, it still faces financial challenges as communities are expected to contribute financially towards the daily operations and maintenance of their water points, unlike during the apartheid government era where the government was the sole provider of the water services. While some communities took over the responsibilities of managing their own water points successfully, other communities are still struggling to get their water points running smoothly. Unfortunately, this system has become a challenge in terms of affordability to some communities, to the

extent that the government was considering the reintroduction of water subsidies for poor rural communities by 2016.

In general, communities are in charge of managing the water points but rely on the government for financial support for major repairs (Karuaihe et al 2014:336).

### **3.5.2 Critical success factors for water governance in Namibia**

The water supply in Namibia is governed through a pluralist form of governance. Water governance refers to a range of political, social, economic and administrative systems to develop and manage water resources and service delivery (Jacobson, Meyer, Oia, Reddy & Tropp 2013; UNDP 2004; Franks & Cleaver 2007).

According to Remmert (2016), governance is a critical factor that determines the overall performance of the water sector. Despite the contestation of the term “governance”, broadly governance refers to the ability of institutions to implement and ensure competent and sensible administration and planning. In addition, Tiihonen (2004) also indicates that good water governance incorporates the decision-making process and institutions, the rule of law, ethics, and broad participation and requires appropriate conditions and an enabling environment.

According to the United Nations Development Programme, water governance comprises the mechanisms, processes and institutions that allow all stakeholders, including citizens and interest groups, to articulate priorities, exercise legal rights, meet obligations and

mediate differences (UNDP 2004:10). For success, water governance should include collective decision-making, active institutions, and suitable policy and legal and political frameworks. Water governance guides enable and enhance effective and sustainable water management and provision.

According to Remmert (2016:6), water management institutions are critical for water governance in Namibia. The management institutions should have the ability to implement policy and ensure competent and sensible administration and planning. Good governance enforces policy implementation and regulations and proper maintenance of existing infrastructure and planning.

Namibia embraced different forms of water governance reforms such as decentralisation, integrated and coordinated decision-making and the participation of a range of stakeholders, including local communities for effective and sustainable water management (UN 2018). From 1997, Namibia has followed a community-based water management strategy. The strategy was implemented through the Directorate of Water Supply and Sanitation Coordination (DWSSC) in the Ministry of Agriculture, Water and Forestry (MAWF). This means rural communities are responsible for managing and paying for water services (Bosworth, Hegga & Ziervogel 2018).

According to the United Nations (2018), the critical success factors of good governance include transparency, accountability, participatory approaches, gender equity and access to information. The complication of water resource management and its crucial importance for human survival led to Namibia's new democratic dispensation

necessitating the establishment of governance mechanisms within and across water management institutions (Remmert, 2016).

Although such a mechanism was not completely new in water governance in Namibia during the South West African Administration, the Water Ordinance passed in 1932 made provision for a water board to be established to advise the government on water issues. The water board operated the same way as the Water Advisory Council to be established under the Water Resource Management Act 11 of 2013. It is expected that when the Water Resource Management Act 11 of 2013 become operational, it will repeal the Water Act 54 of 1956 as a whole.

Remmert (2016) argues that water governance in Namibia is weak and has resulted in poor implementation of policies and plans. This intensified mistrust, and thus lack of communication between public institutions, the public sector and the general public has severely limited problem-solving approaches. These shortfalls harm the citizens' development and the well-being of the community as a whole.

According to the Water Supply and Sanitation Policy (2008), the number of actors regulating and managing the water sector in Namibia range between ministries and government institutions. Among these ministries and institutions are the Ministry of Land and Resettlement responsible for establishing water and sanitation services for resettlement farms and the Ministry of Health and Social Services responsible for promoting sanitation practices among communities. The primary responsibilities with regard to control, management, monitoring and assessment of the country's water

resources are the prerogative of the Ministry of Agriculture, Water and Forestry. NamWater, which was established by the Namibia Water Corporation Act No. 12 of 1997, is responsible for bulk water supply. NamWater was established as a government commercial entity with a duty to supply water. According to Section 2 (1) of the NamWater Act, the company is mandated to carry out efficiently the primary business of bulk water supply to customers, in sufficient quantities, of a quality suitable for the customers' purposes, and by cost-effective, environmentally sound and sustainable means; and has the secondary business of rendering water-related services, supplying facilities and granting (lease) rights to customers upon their request (Republic of Namibia, 2009). However, there are overlaps of responsibility between NAMWATER and the Ministry of Agriculture, Water and Forestry in terms of tariffs setting and granting rights to customers upon request for private water. Section 7 of the NamWater Act 1997 and section 12 of the Water Resource Management Act 11 of 2013 provides for both NamWater and the Ministry of Agriculture, Water and Forestry to set tariffs and granting rights to customers. The water governance structure in Namibia needs to improve its efficiency and effectiveness in water use and human resources. Amongst several factors impeding progress ineffective water provision in Namibia are ineffective or lack of regulations, unclear responsibilities and weak local capacity such as the absence of leaders and skilled managers.

Muthunayake (2010) argues that effective water governance is anchored on five foundations: efficiency; environmental and economic sustainability; responsiveness to socio-economic development needs; accountability before stakeholders and the public;

and adherence to ethics and moral values. Openness, transparency, stakeholder inclusiveness and a participatory approach will lead to implementable policies and more flexible decision-making. But some basic principles are considered critical to creating an open forum with all stakeholders, including decision-makers, to discuss water issues.

There is no single model of effective water governance. To be effective, governance systems must fit the social, economic and cultural particularities of each country and each community. According to Rogers and Hall (2003), the World Water Assessment Programme principles of good governance are participation, transparency, equity, accountability, coherence, responsiveness, integration and ethics. The current study investigates the progress and drawbacks in water governance in Namibia.

Although Namibia succeeded in decentralising water governance by involving water user associations, setting up policy goals and assigning responsibilities, it is critical that accountability, integrity, coordination, transparency and water pricing undergo a substantial improvement.

The next section presents a brief overview of the main actors or institutions involved in the governance of rural water supply in Namibia.

### **3.6 Governance of rural water supply in Namibia**

Water is a critical factor, and water supply remains a severe problem throughout Namibia, as the country is considered to be one of the most arid countries in southern Africa

(Ruppel & Ruppel-Schlichting 2016:25). Providing potable water is one of the Millennium Development Goals (MDGs) to halve the number of people who do not have access to affordable, safe drinking water. These objectives influenced the Namibian water policy. Hence, following independence, the country developed, revised, passed or initiated some acts, policies and regulations addressing the utilisation, management and protection of the nation's scarce water resources (Remmert 2016:3). In order to achieve this vision, water reforms became necessary. The present rural water supply reform has the objective to reverse the adverse effects of previous policies (Falk 2016:173).

The post-independence Namibian state has been burdened with the way in which water supply and demand was governed from the apartheid regime. The reform encourages the active involvement of different stakeholders and the empowerment of water users to promote the saving of water and maintenance of infrastructure. It is recognised that stakeholder involvement would decrease the government's burden concerning the supply of water and encourage ownership and community commitments (Haysom 2006).

Given that background, various laws and policy documents addressing the water issues were reviewed and enacted (see the Laws and Policies Governing the Water Sector 3.5.1). In conformity with Article 100 of the Namibian Constitution, the Water Resource Management Act 11 of 2013 keeps the ownership of water resources in the hands of the state, making the government able to control and ensure that water points are managed and used to the benefit of all people (Falk 2016:173).



Furthermore, the Water Supply and Sanitation Sector Policy of 2008 highlights that community participation and subsidiarity are critical strategies of the Namibian Government in order to achieve the objective of economically, environmentally and socially sustainable water management. The policy includes a strong commitment to broad stakeholder engagement and specifies the principles of maximum involvement of users, delegation of responsibility to the lower possible level, an environmentally sound utilisation of water resources, controlled outsourcing and cost water recovery (Falk 2016:174). However, the government already decided in 1997 to devolve the responsibility of managing and paying for water services to the community organisations. One of the fundamental principles of the Water Supply and Sanitation Policy is a cost-effective water supply. Contrary to this principle, the policy emphasises that there is a social responsibility to make water available to the poor. It has been shown that the pricing of water overstrains many poor people and can be in conflict with Namibia's recognition that water access for personal and domestic use is a recognised human right (Falk 2016; Bock et al 2009). Probably this is catered for by the exclusion of cost recovery in the Water Resource Management Act 11 of 2013.

The Water Resource Management Act 11 of 2013, repealed the Water Resource Management Act 24 of 2004. Unfortunately, there is no mention of the Water Point User Association in the new Act. The new Act mandates the Ministry of Agriculture, Water and Forestry the right to accredit the water point committees and local water committees to be "entrusted with the responsibility of managing and controlling the supply of water at any rural state work" (Water Resource Management Act 11 of 2013). The consideration of community ownership rights is missing. Also, with regard to the constitution and powers

of water point committees, the appointment of committee members or the setting of tariffs are supposed to be specified in regulations which are not available yet.

### **3.7 Water management institutions of the rural water supply**

In Namibia, several institutions ranging from dedicated government departments and state-owned institutions through municipalities and community-based water point committees to private organisations and individuals are responsible for different aspects of water supply, management and use.

Institutions	Descriptions
Ministry of Agriculture, Water and Forestry	Managing water resources in the country
NamWater	Bulk water supplier provides water directly to some end-users as well as to other suppliers for ultimate delivery to end-users.
Local authorities, (City, Town and Village Councils), and Regional Councils	Deliver bulk water purchased from NamWater to end-users mainly in urban areas, and in some cases abstracts water from natural sources themselves.
Directorate of Rural Water Supply and Sanitation Coordination falls under the	Water to some end-users in rural areas is provided by Government agency (RWS).

Ministry of Agriculture, Water and Forestry	Water may be purchased from NamWater or abstracted directly from sources developed and/or maintained by RWS.
Rural Communities (Local Water User Associations and Water Point Committees)	Communities that now manage their own water. Water is purchased from NamWater and supplied to these end-users in rural areas while some start to manage and operate their own supply systems.
Self-providers	Users that abstract their own water mainly for own use such as livestock farmers, tourism sites and mining companies.

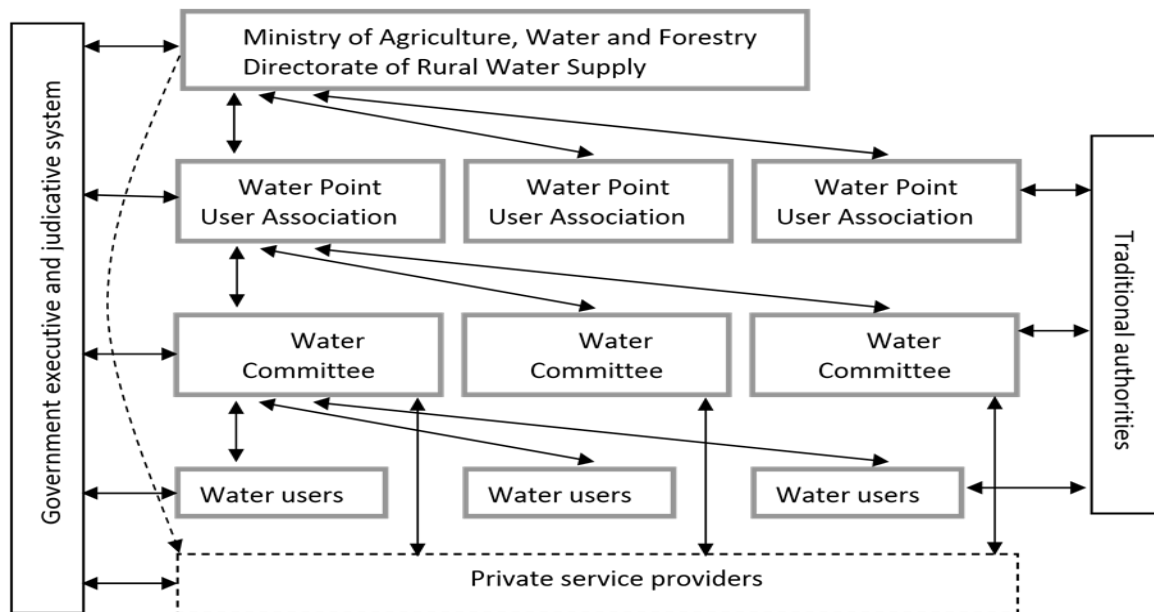
**Table 3-1: Water management institutions of the rural water supply**

Source: Republic of Namibia (2006:6)

The Namibia Water Corporation (NamWater) is responsible for bulk water supply in the country. NamWater is a state-owned company established by an act of Parliament (Act 12 of 1997) as a commercial entity supplying water in bulk to industries, local authorities and regional councils. The Ministry of Agriculture, Water and Forestry are responsible for managing water resources in the country, while the Directorate of Rural Water Supply under the Ministry of Agriculture, Water and Forestry is responsible for managing rural water supply. With decentralisation as a national policy, the responsibility for rural water

supply has been devolved to the regional level where community-based management is the fundamental premise for rural water management.

Figure 3.3 presents an overview of the management model/structure of rural water supply in Namibia according to the Water Resource Management Act 24 of 2004.



**Figure 3-3: Overview of the current management model/structure of rural water supply in Namibia**

Source: Bock et al (2009:121)

Figure 3.3 is a polycentric organogram of the governing organisations of Namibian rural water supply. This organogram provides an overview of the main actors involved in the rural water supply sector in Namibia.

### **3.7.1 Ministry of Agriculture, Water and Forestry**

The Ministry of Agriculture, Water and Forestry are in charge of water resources management, drinking water supply and sanitation in Namibia. The Ministry represents the central government; its role mainly is ensuring appropriate legislation and strategic planning functions to support the implementation of the water policy. Other functions are to promote community participation in the protection, use, development, conservation, and financing of water resources, and coordinate planning, training, management and control thereof (Republic of Namibia 2004). In general, the role of the Directorate of Rural Water Supply is to regulate water resources and services, allocate water resources, develop and manage water resources and deliver service as well as helping communities to manage their own water points (Karuaihe et al 2014:336). It also promotes sustainable socio-economic development and sustainable utilisation of water resources. This is achieved through effective management, control and use of water resources; securing equitable access to water resources and securing equal access to water for all sectors of the Namibian population (Republic of Namibia, 2016:45).

At the moment, four ministries are involved in the water supply sector. Based on the integrated planning and development approach, the Ministry of Agriculture, Water and Forestry does not work in isolation. They take the lead in coordinating roles, functions and responsibilities of other relevant sector ministries and departments (Mugumya 2013), such as the Ministry of Health and Social Services (MOHSS), Ministry of Urban and Rural Development (MURD), NamWater, and the Ministry of Land and Resettlement (MLR).

The Ministry of Health and Social Services in liaison with other ministries plays a significant role in environmental health planning, development, training and promotion. It is also responsible for hygiene education, and control of water quality, while the Ministry of Urban and Rural Development oversees the responsibility of coordinating community development through Regional Councils and Local Authority Councils, supporting self-help schemes and assisting communities in mobilising themselves. The Ministry of Land and Resettlements is responsible for allocating land for water transporting pipe trenches and erection of water points.

During the revision of the Water Supply and Sanitation Sector Policy (WSASP,2008), the government transferred the provision of sanitation services in rural communal areas to the Directorate of Rural Water Supply in the Ministry of Agriculture, Water and Forestry (MAWF). This function had resided under the Ministry of Health and Social Services (MOHSS). The Ministry of Agriculture, Water and Forestry in collaboration with the Ministry of Urban and Rural Development and the Ministry of Health and Social Services drafted the strategic plan on sanitation and budgeted for it.

Overall responsibility for rural water supply issues within the state administration belongs to the Ministry of Agriculture, Water and Forestry and within the ministry to the Directorate of Rural Water Supply. This Directorate is responsible for planning, implementation, operation and maintenance of the rural water supply network. It is critical that the participation of traditional leaders, church representatives, political party representatives and different womens' groups are not neglected in the development and implementation.

The Water Supply and Sanitation Policy (1993) established the Directorate of Rural Water Supply, which mandates it to oversee a community-based management system. It grants the community the rights to plan, maintain and manage their own water. In granting such a right, the policy does not give the community ownership of the water but allows for community participation, which is in line with public ownership of water (Pinto 2014:19).

### **3.7.1.1 Water Point User Association**

According to Remmert (2016), the Water Resource Management Act 24 of 2004 which to date hasn't come into effect, focuses on the establishment of the Water Point User Association. This Association consists of the community members who permanently use a particular water point.

The function of the Water Point User Association is to coordinate the water management of the region and to solve challenges which cannot be solved on the local level. The Water Point User Association has the right and the duty to operate and maintain their water points in order to foster a sense of ownership (Republic of Namibia 2004: sec 18(1); Daemane 2015). They decide about water use regulations and permits or forbids access to water according to their rules. They are given the power to adopt measures to prevent the wastage of water and to protect water infrastructure against vandalism and other damage (Republic of Namibia 2001: 6.2.2, 2004: sec 18, 19; the Republic of Namibia 2006).

The Water Point User Associations are supposed to elect Water Point Committees in order to run the day-to-day management and financial activities (Republic of Namibia 2004: sec 16 (1), (2); Bock et al 2008). These consist of those community members who permanently use a particular water point (Republic of Namibia 2006). Generally, the WPAs can incorporate various stakeholders, such as traditional authorities, government officials or church leaders, in their committees (Republic of Namibia 2001).

The Water Supply and Sanitation Sector Policy of 2008 states that:

... equitable improvement of water services should be achieved by the efforts of the government and the beneficiaries, based on community involvement and participation, the acceptance of mutual responsibility and by outsourcing services where necessary and appropriate, under the control and supervision of government (Republic of Namibia 2008).

The commitment to broad stakeholder involvement is a commitment to a polycentric reform approach. The backbone of the reform lies in the empowerment of water users through capacity-building in issues related to infrastructure operation and maintenance as well as water conservation (Ruppel & Bethune 2011:144).

### **3.7.1.2 Water Point Committee**

The key actors in the community management model, of course, are the beneficiaries through the water point committees. Even though not yet commenced, Section 30 of the Water Resource Management Act (2013) provides for the establishment and



management of the rural water supply by the Water Point Committees and Local Water Committees. These committees are entrusted with the responsibility of managing and controlling the amount of water at any rural state water-work (Water Resource Management Act 11 of 2013: section 30 (1)(b)). The WPCs are elected by the users to represent them. This principle has two critical components: exercising citizenship at the local level, which incorporates elements of inclusion and participation and the development of transparency management and accountability mechanisms.

According to the Republic of Namibia (2004), the WPCs have the right and duty to operate and maintain their water points to foster a sense of ownership. Their constitutions contain stipulations on water use regulations and access. They are further given the power to adopt measures to prevent the wastage of water and to protect water infrastructure against vandalism and other damages. A backbone of the reform lies in the empowerment of water users through capacity-building in issues related to infrastructure operation and maintenance, as well as water conservation (Republic of Namibia 2008). The Water Point Committees are empowered to monitor and enforce compliance with regulations, for example, by introducing penalties. However, there is a contradiction between the Water Policy and the Act. Section 30 of the Water Resource Management Act (2013) outline, in detail the certification and accreditation of the committees authorising them to manage and control the supply of water at the water point specified in the certificate and provides for the water supply requirements of water users in the area where the water point is located. However, in practice, the certification of accreditation stipulated in section 30 of the Water Resource Management Act, 2013, is non-existent from a legal point of view,

making these committees not accredited. In the end, this will nullify all efforts and decisions made by these committees if challenged in a court of law.

The study conducted in Namibia by Heyns (2005:100) concludes that there is a need to put precise mechanisms and criteria in place to assess whether the institutions are operating effectively as far as water resources development, allocation, use, protection and management of resources are concerned. The current study provides insight into the established water institutions and will be of help in enabling them to perform and establish successfully.

### **3.7.2 NamWater**

NamWater created in 1997, is a state-owned, bulk water supplier that operates dams, pipelines and water treatment plants throughout the country. According to Bock et al (2009) it provides and sells water to mines, as well as to municipalities which, in turn, distribute and sell the water to households, businesses and offices in their respective service areas, whereas the Directorate of Rural Water Supply of the Ministry of Agriculture, Water and Forestry is in charge of rural water supply and sanitation.

## **3.8 Challenges in the governance of rural water supply in Namibia**

According to the Republic of Namibia (2009), Namibia faces an enormous challenge with regards to the management of the rural water supply. Amongst the difficulties identified are weak leadership, minimal internal professional and technical capacity, challenges to

retain the little capacity still available and budgetary constraints. The other challenges identified by Remmert (2016:5) include the staff and skills deficit and coordination between the main actors in the provision of water and decentralisation.

A lack of capacity relating to technical staff and overall staffing levels are crippling the water sector. With regards to the coordination, the institutional arrangement of the water sector spawned some challenges, although the reform process emulated the international best practices of separating roles and responsibilities among institutions as well as levels of government.

Water resource management in its different levels – national, regional, basin-wide and local, places great importance on community involvement and participation in the provision of water supply and sanitation, an objective also vigorously promoted by the Namibian Water Resources Management Review (NWRMR) (Remmert 2016:7). Despite the provision in the policy, communities are not sufficiently capacitated to enable them to play their roles. The complexity of the organisational structure such as poor coordination and communication within the water sector has been observed both within and between institutions (Mugumya 2013). As a result, coordination and communication among water sector institutions are weak and it results in unsatisfactory progress in terms of water infrastructure development in the country.

The community-based management programme introduced in the late 1990s is considered as a success, particularly with regard to securing and expanding freshwater supply to rural communities and settlements (Remmert 2016). The decentralisation policy

of 2000 promotes active community participation in addressing and taking part in problem-solving efforts, thus giving citizens a direct stake in their own development. Furthermore, the policy seeks to establish transparent and accountable local governance structures and develop a culture of democracy at the local level. In general, the policy of decentralisation has and is being promoted aggressively in the water sector. Mugumya (2013:69) argues, however, that while decentralisation of service delivery recognises the importance of citizens and communities in public service delivery, indications are that effective delivery of decentralised and market-oriented services, including domestic water supply, has until today faced daunting challenges, particularly in developing countries including Namibia. Mugumya (2013) furthermore includes inadequate leveraging of financial resources to support the community water project, local political interference, limited government support for community capacity building, poor financial management and absence of community consultation amongst the identified challenges as some of the critical constraints to the delivery of participatory and decentralised rural water services.

According to Remmert (2016:08), poor financial management and inappropriate tariff settings by some authorities have forced the bulk supplier NamWater to step in and manage such accounts. Furthermore, the Integrated Water Resource Management Plan (IWRMP) (2010) mentions that there is considerable reluctance amongst central government ministries to devolve more responsibilities to the regions due to unreliable performance. However, it should also be admitted that regional and local authorities often lack the financial and human resource base to meet their responsibilities.

The IWRMP report states that committees face financial and management challenges in administrating and maintaining local water infrastructure and that water supply security and pollution remain significant problems (Integrated Water Resource Management Plan 2000; Remmert 2016).

Although the latest Water Act has sought to remedy many inconsistencies regarding water point committees neglected in the Act of 2004, it is acknowledged that “customary or community ownership” is still not addressed and emphasises that there is a need to harmonise the Act’s regulations with the Communal Land Reform Act of 2002 (Falk 2016; Water Resource Management Act 2013).

According to Remmert (2016), Water Committees require considerable capacity building and funding to carry out their tasks. As defined in the Water Resource Management Act of 2013, the roles and responsibilities of committees are made clear. Furthermore, the Act specifies that the Ministry of Agriculture, Water and Forestry must provide administrative and technical support to each committee and the Minister may authorize financial support (Water Resource Management Act 2013). However, given the existing challenges around coordination and communication among government institutions as well as funding constraints, the responsibilities of Water Committees are extensive and perhaps unrealistic. Furthermore, Remmert (2016) cautions that weak engagement and feedback from regional and national authorities would likely weaken committee members’ commitment as well as community engagement towards community-based management. An environmental expert involved in support of committees believes that most community-based management committees are currently weak or non-existent. Therefore, Bosworth,

Hegga and Ziervogel (2018) warn that expecting local management and participation without providing support on how to participate can make it more challenging for vulnerable communities to access and manage water.

### **3.9 Conclusion**

This chapter has presented the evolution of rural water supply and management in Namibia, and the legislative framework of the Namibian rural water supply governing the water sector in the country. Even though the Water Resource Management Act 24 of 2004 approved and published in the Government Gazette, it has never come into force. The same is observed with the Water Resource Management Act 11 of 2013. It was passed by the parliament and promulgated in the Government Gazette, seven years later it has not yet commenced. The Water Act 54 of 1956 remains applicable and regulates the water sector in Namibia. Water management institutions responsible for water supply, management and protection were also presented. The chapter concludes with the critical success factors for water governance and challenges in the governance of rural water supply in Namibia.

The next chapter discusses the methodology for the study and presents aspects such as the research design, population and sampling, criteria for selection, the interview as a data collection method, organisation and analysis of data, ethical considerations and the validity and reliability of the study.

## **CHAPTER 4: RESEARCH METHODOLOGY**

### **4.1 Introduction**

This chapter discusses the research philosophy and paradigm, research design, population and sampling procedures, research instruments and methods of data collection utilised in this study. Careful consideration given to research ethics is discussed at the end of the chapter. The study used a combination of quantitative and qualitative research methods. Data were generated through a combination of primary and secondary sources.

The study follows a mixed-methods approach for data collection and analysis. The research design involves a descriptive and interpretive case study analysed employing qualitative methods. A diagnostic tool was used to assess the current state of water management, determine the number of water points, and identify functional and non-functional water committees and the level of satisfaction among the water committees (Nelongo 2016). A descriptive statistical method is used.

To ensure the validity of the quantitative data collected from the field, the method of triangulation that involves key informant interviews and document reviews was administered. Furthermore, to ensure the trustworthiness of the research, peer reviews and the justification for each of the data collection methods used in the study are discussed.

It was anticipated that the results of the study would lead to the development of the framework for rural water supply management in the Ohangwena region. The study is divided into two phases. The first phase of the study commences with a mini-survey.

The study was undertaken to investigate and pay specific attention to the management, operation and maintenance as critical success factors for the sustainability of the selected water points in the region, and to generate fresh insights into real-life issues and problems. Factors associated with the interaction and degree of participation among the target community and other stakeholders in using the water supply schemes under investigation are assessed in the study. The study participants comprise of the Local Water User Association members, Water Point Committee members and officials from the Directorate of Rural Water Supply in the Ministry of Agriculture, Water and Forestry at the regional office.

## **4.2 Research philosophy and paradigm**

All studies are based on some underlying philosophical assumptions about what constitutes “valid” research and the research method appropriate for the development of knowledge in a given study. A research philosophy is a belief based on the way in which information should be gathered, analysed and used, while a paradigm implies a pattern, structure and framework or system of scientific and academic ideas, values and assumptions (Olsen, Lodwick & Dunlop 1992:16). Furthermore, Rocco, Bliss, Gallagher & Perez-Prado (2003:19) define a paradigm as “a world view”. It is a fundamental assumption that guides the research enquiry. Saunders, Lewis and Thornhill (2012:138)



classify research paradigms under positivism, interpretivism and critical postmodernism. These three philosophical perspectives are the popular paradigms in contemporary social, organisational and management research.

It has often been observed (Benbasat, Goldstein & Mead 1987) very accurately that no single research methodology is intrinsically better than any other method and many authors call for a combination of research methods in order to improve the quality of research. Amongst many philosophical assumptions reviewed, positivism and interpretivism were identified as the framework for the study.

This study focusses on the two philosophies of positivism and interpretivism to understand the critical success factors since the inception of community management of rural water supply in the Ohangwena region. Regarding research philosophy, quantitative research is grounded in the positivist paradigm, a realistic/objectivist ontology or the empiricist epistemology (Sarantakos 2005). This study uses a survey to collect the preliminary information which informs the second phase of the study.

The study apply positivism in the first phase of the study. As stated above, the study employs a mixed-methods approach. The researcher believes that the use of mixed methods will create a holistic picture which would help to solve a complex problem. Although the main focus of the positivist approach is on a generalisation of the findings, it is applied to determine the actual number of water points, active and inactive water point committees or functional and not functional water points in the region. The positivist paradigm assumes that reality exists independently of human understanding or

interpretation and that through scientific research one can build objective, real knowledge (generalisations) about reality (Creswell 2014; Denzin & Lincoln 2005).

The positivists believe that reality is stable and can be observed and described from an objective viewpoint that avoids interfering with the phenomena being studied. The information obtained through the quantitative research approach is presented in numbers and graphs as opposed to descriptions.

The primary philosophical paradigm for this study was interpretivist. According to Thomas (2010), interpretive researchers believe that reality consists of people's subjective experiences of the external world; thus they may adopt an inter-subjective epistemology and the ontological belief that reality is socially constructed. Furthermore, Thomas (2010:6) explains that "interpretivism is not a single paradigm; it is, in fact, a large family of diverse paradigms". According to Boland (1985) cited in (Thomas 2010:296), the philosophical base of interpretive research is hermeneutics and phenomenology. In the same manner, the theoretical approach to human understanding, hermeneutics provides the philosophical grounding for interpretivism. This paradigm centres on the notion that reality can only be understood via subjective interpretation (Myeko 2014). Keegan (2009) emphasises the belief that there is no simple, definitive truth and that there are multiple different perceptions of reality that are all equally valid (Myeko 2014). This paradigm is typically associated with qualitative research (Tubey, Rotich & Bengat 2015:227) and is the most commonly used research paradigm within the social sciences (Goodsell 2013), making it appropriate for this study.

Interpretivists contend that reality can only be fully understood through the subjective interpretation of and intervention in reality. Thomas (2010:296) argues that the interest of interpretivism is not the generation of a new theory, but to judge or evaluate, and refine interpretive approaches. The study of phenomena in their natural setting forms the basis for the interpretivist philosophy, together with the acknowledgement that scientists cannot avoid affecting the aspects they study.

This research tries to evade what may be characterised as methodological monism, which is the persistence on utilising a single research method. This is not due to an incapacity to decide between the various advantages and disadvantages of the multiple alternatives. Instead, the researcher believes that all approaches are valuable if used appropriately; hence, my approach includes elements of both the positivist and interpretivist approaches. In general, an interpretivist philosophy will be the main approach to the study for understanding the perceptions of the community management of the rural water supply. However, a positivist, quantitative approach through an initial mini-survey is adopted in recognition of the lack of objectivity sometimes associated with interpretivist research methods.

Although this study generates both quantitative and qualitative data, it is underpinned mostly by qualitative philosophical assumptions rooted in the interpretivist perspective, based on the researcher's understanding of the phenomenon under investigation.

### **4.3 Research methodology and design**

This section deals with the process followed to get results and arrive at the conclusions of the study. According to Thomas (2010:11), a research method is described as a strategy of enquiry that moves from the fundamental assumptions to research design and data collection. Schwardt (2007:195) defines research methodology as a theory of how an inquiry should proceed. Research design can be described as a process that one can follow to find answers to the research questions. For Durrheim (2002), the research design is a strategic framework for action that serves as a bridge between research questions and the execution, or implementation of the research strategy.

This study combines quantitative and qualitative methods. The researcher believes with Mason (1996) that each method is dependent on the purpose, context and nature of the research study in question.

Qualitative research is naturalistic; it attempts to study the everyday life of different groups of people and communities in their natural setting (Denzin & Lincoln 2005). According to Mutsau and Mashatise (2015:126), qualitative research aims to “explore and to discover issues about a given problem about which very little is known”. There is usually doubt about the characteristics and dimensions of a problem. Thomas (2010) describes qualitative research as a design to help researchers understand people and the social and cultural contexts in which they live. Qualitative data sources include participant observation (fieldwork), interviews and questionnaires, documents and texts, and the researcher's impressions and reactions. This study uses interviews and document

analysis as research instruments in collecting qualitative data. The qualitative research design is found appropriate in achieving a deep understanding of what people think about the management, operation and maintenance of the water points and to describe in great detail the perspectives of the research participants.

In contrast, McLafferty (2010:46) defines quantitative research as that which primarily involves quantifiable, numeric data and the use of statistics as opposed to qualitative research methods which primarily include the use of non-numeric data, expressed and analysed in words. According to Denzin and Lincoln (2005), compared to the quantitative approach, qualitative methods consist of research designs that explore the meaning, interpretation and the construction of social reality using data mainly in the form of words and ideas rather than numbers.

The difference between qualitative and quantitative research can be found in the form of data collection, analysis and presentation. Data obtained through quantitative research presents statistical results represented by numerical or analytical data, while data collected through qualitative research presents data as descriptive narration with words and attempts to understand phenomena in “natural settings”.

In this study, quantitative research entails the use of surveys to gather data that is revised and tabulated in numbers, which allows the data to be interpreted by the use of statistical analysis. Qualitative approaches, therefore, are deemed more appropriate than quantitative designs to provide the insight necessary to understand the participants’ role

in the management, operation and maintenance of the water points and their perceptions of the experience.

The choice of a mixed-methods approach for this study was influenced by Chowns' (2014:157) belief that a combination of these approaches offers helpful and complementary insights. In addition, Gorard (2010:2) and Cresswell (2014:565) support the combination of many methods and types of data as quite usual for anyone who genuinely wants to find the answer to their research questions. Chowns (2015a) points out two critical strengths of applying mixed methods. Although one approach leads to a more significant application of the other, they complement each other through providing different perspectives which can triangulate each other and build a more vibrant and more robust analysis (Ivankova, Creswell & Stick 2006).

In this study, a quantitative approach is used in the first phase of the research for the mini-survey, while the main study is dominated by the qualitative approach. The quantitative data are analysed using Excel to describe the current state of rural water supply in the study area while the qualitative analysis focusses more on the explanation.

#### **4.3.1 Survey**

The research survey is used to investigate the current status of the rural water supply in the study area. The word "survey", according to the Merriam Webster Dictionary (2019: sv "survey") is derived from the Anglo-French word "surveer" which means to look over. Further, according to the dictionary, survey means to examine a situation or to query

(someone) in order to collect data for the analysis of some aspect of a group or area. It is a process in which data are scientifically collected from a population or a sample thereof through some form or direct solicitation, such as questionnaires.

A mini-survey with water point committee members and officials from the Directorate of Rural Water Supply in the Ministry of Agriculture, Water and Forestry was conducted to obtain their opinions about the water point's management, operation and maintenance. Purposive sampling was used to get respondents for the survey. The survey method offers a high level of data standardisation and provides for transparency and repeatability (Robson 2011). Moreover, the questionnaire method allows for a direct and meaningful comparison between the technical (scientific) and local knowledge sources. In total, fifty (50) respondents – that was 40 committee members out of 80 and 10 officials out of 10, were selected to take part in the survey. However, only thirty-nine (39) committee members and nine (9) officials completed the questionnaires.

The questionnaire consisted of 30 questions with some binary (“yes” or “no”) responses and some quantitative response questions (see Appendix 1 and 2). Survey enabled the researcher to obtain data about practices, situations or views through questionnaires. Quantitative analytical techniques were then used to draw inferences from such data regarding existing relationships. A key weakness was that it was challenging to realise insights relating to the causes of or processes involved in the phenomena measured.

### **4.3.2 Case study**

According to Thomas (2010) and Yin (2014), a case study is one of many ways of doing research in both the social science and management fields because it aims to understand human beings in a social context by interpreting their actions as a single group, organisation, community or a single event. It is an experiential inquiry that investigates a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used. Furthermore, Gillham (2000:1) defines a case study as “an investigation to answer specific research questions which seek a range of differing evidence from the case settings”.

From amongst various definitions of case studies, the interpretation by Benbasat et al (1987:370) cited in Thomas (2010) adopted for this study considers the case study to be viable for the following three reasons:

- It is essential to study the phenomenon in its natural setting and understand the nature and complexity of the process taking place.
- The researcher can ask "how" and "why" questions.
- The research is being conducted in an area where few if any, previous studies have been undertaken.

The selection of the case study method was therefore influenced by the fact that the phenomenon would be studied in its natural setting and the researcher intends to develop a framework on the management of rural water supply. All the collected evidence is



collated to arrive at the best possible responses to the research question(s). This means that the researcher could gain a sharpened understanding of why the instance happened as it did, and what would be important to look at more extensively in the development of the framework and future research.

According to Thomas (2010) and Ramahotswa (1995), case studies involve an attempt to describe relationships that exist in reality, very often in a single organisation. It can be positivist or interpretivist in nature, depending on the approach of the researcher, the data collected, and the analytical techniques employed. However, case studies can be considered weak as they are typically restricted to a single organisation and it is difficult to generalise findings since it is hard to find similar cases with similar data that can be analysed in a statistically meaningful way (Thomas 2010). Moreover, different researchers may have different interpretations of the same data, thus adding research bias into the equation.

Action research is a form of applied study where the researcher tries to develop results or a solution that is of practical value to the people with whom the study is working, and at the same time developing theoretical knowledge (Thomas 2010). The findings of the study can help the researcher to develop a framework or model for community management of rural water supply in the Oshana region of Namibia.

Case study design examines a particular phenomenon through in-depth analysis. Case study design is selected for this study because the investigation was going to be carried out on a relatively small scale of six water schemes out of ten. According to Chowns

(2014:160), Mathew (2004) and Carter and Rwamwanja (2006), studies about the sustainability of rural water supply often adopt a case study format because usually the researcher already knows the project and seeks to understand it in greater detail.

Given the interpretive position adopted in this research and the nature of the research question, the case study methodology was considered the most appropriate approach to employ because it provides a systematic way to collect data, analyse information, and report the results, thus to understand a particular problem or situation in great depth.

Furthermore, unlike many other forms of research, the case study does not utilise a particular method of data collection and analysis (Merriam 1998:28) but instead allows for a combination of methods. Thus this study also used different methods.

In order to establish the validity and reliability of the research, various data collection instruments and techniques were used (Yin 2014). Interviews with key informants and primary and secondary data were also collected from documents, reports from sectoral offices, and other concerned government departments in and outside the region to validate the primary data (Lencha 2012:20).

According to Lencha (2012:20), case study research design has many advantages; it gives to the researcher an opportunity to be in charge of salient features that depending on the target socio-economic factors, geophysical features and the system category that influences various features of a rural water supply scheme.

#### **4.4 Population and sampling for the study**

Polit and Hungler (1999:37) refer to the population as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications. In this study, the population was all the water schemes and water points in the Ohangwena region, Namibia. The process of selecting a portion of the population to represent the entire population is known as sampling (Polit & Hungler 1999:95).

Several sites were reviewed for the research but were found unsuitable for this study, and hence the Ohangwena region was selected out of fourteen regions in the country as it constitutes ten (10) water schemes. These water schemes are Epembe, Okongo, Omundaungilo, Oshikunde, Epalala-Oshikango, Endola-West, Omafo-Eenhana, Endola-East, Onambutu Project 4 and 5 and Onambutu project 6. The first phase of the study covered all ten schemes in the region from which six water schemes were selected for the second phase of the study. The six were chosen on the basis that three were well managed and the other three were not well-managed. The well managed referred to those that have water sufficiency, reliability of water supply, the trustworthiness of the water committee, prompt repairs of facilities as and when required, cleanliness of the facilities (water point), no debts, not closed and hold regular meetings (Fielmua 2011:179). While it was easy to identify the well-managed, the not well-managed were challenging to identify, because the majority of the not well-managed was closed, and no committees existed. Amongst the criteria for not well-managed water points were a lack of transparency in the use of money contributed by the users, a lack of community-committee interface, irregular flow of water (without explanation), low water pressure as

well as a lack of enforcement on payment of fees towards repairs. However, the research resorted to using those that were highly indebted, but still operational.

This study targeted a group of 50 water point committee members and ministry officials to take part in the survey, while 15 key informants participated in the interviews, respectively. These groups were selected based on their in-depth knowledge and involvement in water point management.

Data obtained from the survey were complemented by semi-structured interviews conducted with key informants such as six chairpersons of the water point committees, five members of the Local Water User Associations and four personnel from the Directorate of Rural Water Supply involved in the planning, coordination and management of the rural water supply in the region. These groups were vital for this study to provide the information required, which emanated from the day-to-day use of the water points. They are involved in the management of the water points and have first-hand information about the rural water supply and water points in particular. All-in-all they have in-depth knowledge of the subject matter.

According to Creswell (2014:228), in purposeful sampling, researchers intentionally select individuals and sites to learn or understand the central phenomenon. In this study, purposive sampling was found to be appropriate for both phases of data collection. This study required informants who had understanding and were conversant enough to relay information as demanded (Neuman 2011:242; Creswell 2014:228). Sampling is about taking a smaller chunk of the larger universe. According to Chowns (2014:161), “sampling

is critically important because it determines the degree to which a study has wider relevance". The aim for this study is to generate findings of importance to planners and regional leadership in the community management of the rural water supply in the whole of the Ohangwena region and to shed some light on community management in general.

The reason for selecting this region was that rural communities here are in dire need of portable water, many of its water points are broken, many rural water points in the region are obsolete, communities walk long distances to access water, and a large part of this region is rural with a high rate of unemployment. The region also has the second-highest population in the country (NSA 2017) and the communities belong to the same culture. The groups identified to participate in the study were involved in the management and some derived direct and indirect benefits from the rural water supply. They were assumed to have a better understanding and to be able to provide the required information for the study: they are "information-rich" (Patton 1990:169; Moser & Korstjens 2018).

In this study, samples were made to determine which people were to participate in the survey and interviews. The chosen water points committee and individuals were from a large pool of over a hundred in each water scheme. Both the high and low functionality of water point committees were sampled.

In particular, two sampling techniques, namely probability and non-probability sampling, were employed in the selection of the participants. Probability sampling was applied in the quantitative approach in order to reach the high representativeness of the sample and therefore, to maximise external validity (Chowns 2014). Non-probability sampling was

used in the qualitative approach. Forty (40) of the fifty (50) respondents represented ten water schemes, while the remaining ten (10) were technical staff from the regional office, representing the Ministry of Agriculture, Water and Forestry. The diagnostic instrument was self-administered for the first phase of the study.

Furthermore, the purposive sampling method was also used to select 15 key informants for the second phase of the study. The advantages of non-probability samples are that they are less complicated and more economical. Non-probability samples are regarded as especially useful in pilot studies in which the preliminary form of a questionnaire has to be tested (Welman, Kruger & Mitchell 2005:68). Piloting is a process where instruments are tested and feedback collected from the field, analysed and used in the adjustment and correction of the data collection instruments such as the diagnostic tool, interview guides and guiding questions. After due reflection had been given to the feedback from the field test, the actual data collection process was administered to selected key informants, using the tested data collection instruments.

Below is a summary justifying the rationale for each sampling decision and the intended research sample involved:

- Fifty (50) survey respondents (40 committee members and ten regional officials) and four committee members were selected from each water scheme. These members were chosen to participate in this study because they were more involved in the management of the water points and had first-hand information about the rural water supply and water points in particular.

- Fifteen key (15) informants including six chairpersons of Water Point Committees (three well-managed and three not well-managed) and five chairpersons of Local Water User Associations were selected. The chairpersons of the Local Water Associations were those elected to manage the water schemes. Hence they were key for this study to provide the required information which emanated from the day-to-day use and management of the water points and water schemes respectively. The other four key informants were personnel at the regional level who were selected for this study because of their in-depth knowledge of the subject matter.

Purposive sampling, therefore, helped in identifying participants with reliable information in the different sampled water points.

The participants were recruited in the study through the list of committees available at the Regional and Ministry Offices. The Ministry officials were selected based on their roles, which were also available at the Ministry. The respondents in the survey were selected based on the information obtained from the regional database. The key informants' details were also available at the regional office database. The researcher introduced himself to the participants and also produced other documents from the University of South Africa (UNISA), and the permission letter to conduct research from the Permanent Secretary (Executive Director) of the Ministry of Agriculture, Water and Forestry and asked for their participation in the study.

#### **4.4.1 Survey respondents (purposively sampled)**

The 40 purposively sampled individuals involved in the mini-survey who represented the ten water schemes were responsible for the management of water points. The remaining ten respondents were from the Ministry of Agriculture, Water and Forestry at the regional levels and were responsible for water point establishment, maintenance and policy formulation. Once the mini-survey had been completed, the second phase of the study was focused on the differences in the management of various water point committees, stratified as high functionality (well-managed) and low functionality (less well-managed). The results from the survey enabled the stratification of water points to identify the well-managed and less well-managed water point committees.

#### **4.4.2 Key informants (purposively sampled)**

In order to get in-depth information, knowledgeable key informants were selected purposively based on their roles and whether they were new or old members of the committees, possessed good communication skills to be able to explain experiences and information in detail and were interested in participating. Six chairpersons of water point committees were interviewed to provide in-depth information pertaining to community management of water points. Three of the six interviewees (chairpersons) represented well-managed water point committees, while the other three represented the less well-managed committees. In addition, five members of the Local Water User Association and four personnel from the Ministry of Agriculture, Water and Forestry at Ohangwena region were interviewed.



## **4.5 Research instruments and data collection procedures**

This section focuses on the research instruments used and data collection procedures.

### **4.5.1 The research instruments**

The researcher individually administered all the data collection processes ranging from population sampling, the distribution and collection of questionnaires, conducting interviews and document analysis.

The research instruments that were used comprised an interview guide, questionnaire (a diagnostic tool) and document analysis. A semi-structured interview guide was used for interviews, while a questionnaire was used as a diagnostic tool administered in the mini-survey for collecting preliminary information with regard to the general management and practices in the study area. Document analysis was used for secondary data which complements and verifies key informant interviews. Interviews were recorded with the respondent's permission on audiotape.

#### **4.5.1.1 Diagnostic tools**

A diagnostic tool (questionnaire) refers to an early assessment of the study area to provide information about the state of affairs relating, in this instance, to the community management of the rural water supply in the region. The term “mini” survey signifies that the survey covered a small though significant population of the study. As described by Denscombe (2010), this type of survey is important to present a current state of affairs in

terms of quantitative data and provides a snapshot of what the situation is at the specific time at which the data are collected. It was important to determine the exact number of water point committees in the study areas during the period of research. The diagnostic tool was only applied to a small group that involved water committee members and technical staff in the Ministry of Agriculture, Water and Forestry at the regional offices. The completed survey forms were handed over and collected by the researcher himself. The participants were provided with envelopes in which they put the completed survey forms. Although limited to the staff at the institutions mentioned above, it covered the whole region. The results from the mini-survey were used to guide the selection of the key informants out of ten water schemes in the region for the data collection process during the second phase of the study.

#### **4.5.1.2 Interview guide**

Kvale (1996) defines qualitative research interviews as attempts to understand the world from the subject's point of view, to unfold the meaning of people's experiences, to uncover their lived world before scientific explanations. Cresswell (2014:239) however describes qualitative interviews as those which occur when researchers ask one or more participants general, open-ended questions and record their answers. Furthermore, Seale, Giampietro, Gubrium and Silverman (2004) describe an interview as a social encounter where interviewees work with the interviewer to produce historical and prospective accounts or versions of past or future actions, experiences, feelings and thoughts.

The choice of these methods was influenced by the above statements concerning experiencing an inner change of views and understanding the reform from the point of view of those who were affected and involved. Interviews are methods of gathering information through an “oral quiz” using a set of pre-planned core questions (Thomas 2010:314; Nelongo 2016). The aim of conducting interviews was to elicit the participants’ experiences, perceptions, thoughts and feelings (Moser & Korstjens 2018). The choice of the interview as the data collection method for this study was also influenced by Mason (1996:68) who maintains that the legitimate way to generate data regarding social reality is to interact with people through talking, listening and gaining access to their versions of events and expressions. According to Thomas (2010), depending on the need and design, interviews may be unstructured, structured, and semi-structured with individuals, or may involve focus group interviews.

A semi-structured interview schedule was used because it possesses features of both structured and unstructured interviews and therefore uses both closed and open-ended questions. In order to ensure that the same areas are covered with each interviewee, the interviewer had a set of pre-planned questions for guidance and consistency. As the interview progressed, interviewees were allowed to elaborate on or provide any further information they deemed relevant to the study.

Interviews in this study were used to complement and verify data collected from documents as well as to elicit new information. The interviews focused on access to water as well as the operation and management strategies used at the specific water points. Through the interviews with the key informants, it was possible to gain an understanding

of the prevailing water situation in the study area. It also enabled the evaluation of the perceptions of beneficiaries regarding the operation and management of various water points and the real needs of the people.

As clearly stated in Turner (2010:755), interviews are flexible, the interviewee can move away from the question and go deeper into his or her own experiences and share his or her opinion without fear of being off the point. The use of a tape recorder during the interview enabled the researcher to listen to the interviewee attentively without the need to interrupt the process.

#### **4.5.1.3 Document analysis**

Data mining (Robson 2011) which involves the extrapolation of information from existing literature relating to the concept under study was used as the basis for the literature review in this study. Annual reports and water committee's documents obtained through official requests from the respective custodians of the information as well as through searches on the internet provided information on the rural water supply community management.

Data mining results showed that there had been few studies conducted on the subject, and as a result, every document with information relevant to the study was utilised.

The researcher undertook a critical review of earlier studies by consulting documents on the history of the Namibian rural water supply as well as in the Ohangwena region in particular. This included the institutional framework of the reform as well as many

documents on various aspects of community management of rural water supply and other publications in the same subject area. The researcher made use of document analysis to collect available statistical data and additional relevant information to arrive at a conclusion which may add value to the research work (Salom 2011:50). The researcher also used the empirical results of this study, results from the analysis of various documents and available data to develop a framework or model for community management of rural water supply in the Ohangwena region of Namibia. Purposive sampling was used to select documents that contained information on the rural water supply community management which were useful for the study. The official documents were obtained through a formal request by those in custody of the information, while other information was obtained through a search on the internet.

#### **4.5.2 Data collection procedures**

Polit and Hungler (1999:267) define data as information obtained in the course of a study. This study used both numerical and narrative data, from both primary and secondary sources (Chowns 2014). Both primary quantitative and qualitative data were collected in the field. The findings were triangulated after the analysis of both primary and secondary data (sourced from the interviews and documents).

One month was dedicated to collecting the primary data and, owing to the seasonal challenges during the rainy season (January–March), the fieldwork was only possible during the dry season (May–August).

Semi-structured interview guides were produced in order to conduct interviews with the key informants and thereby collect qualitative data that would authenticate the study. Before the interview took place, an appointment was secured with the informants. During each interview, a tape recorder was used to record the conversation and later on, it was transcribed by writing it down word for word. After all the interviews were concluded and transcribed, the researcher categorised the issues that emanated from the interviews into main themes according to the research questions.

On the grounds of the secondary data, relevant data were gathered from responsible structures, where the official statistics and other related reports concerning the rural water management of the study were documented, and made available for this study.

In order to determine the perception of the beneficiaries on the management of the rural water supply in the study area and to find out why the adopted strategy had failed or was unsustainable and what key elements could be learnt or replicated from other successful similar strategies elsewhere, interviews with the key informants were conducted. The objectives of the interviews were to obtain information about the successes, failures, problems and the interviewees' experiences with the community management of rural water supply.

The researcher asked the Regional Officer responsible for the rural water supply in the region for a list of knowledgeable water committee members capable of sharing their opinions on the central issues that influence the management of water points in the region. In the process, the researcher identified committees with high functionality and

low functionality water points, followed by their characteristics and the roles the water committees played during the installation and management of the water point.

This determined the selection of the respondents as it was important to assimilate their knowledge of the management of the water points. The scrutiny of participants with expert knowledge was based on those who were familiar with the water point, how they were established, implemented and managed. Fortunately, the interviewees chosen were all willing to share their views about the research topic.

Before interviews were conducted, the researcher explained the nature of the research, the process and the interview schedule. Clarification was provided as to why they were going to be interviewed, the nature of interviews and issues concerning confidentiality and the contact details of the researcher were provided. It was also explained that the interviews would take about 45 minutes to reach the level of detail required to identify management key issues. According to Moser and Korstjens (2018), individual interviews might last from 30 to 90 minutes. The same procedure was followed during the first phase of the study; the questionnaire had general rules on participating in the study. All this was done to build a relationship (trust) between the researcher and the informants.

For the benefit of both the interviewer and interviewee (Terre Blanche, Durrheim & Painter 2009), a tape recorder was used. It preserved the words of the informants, and at the same time, the researcher had the original data. The preservation of data gives assurance to the respondents and confidence that their words will be treated responsibly.

## **4.6 Data analysis methods**

After collecting the data, the researcher started with the transcription of the information obtained through recorded interviews, and coded, categorised and organised the data into manageable units in search of patterns, critical themes and meanings that emerged from the data (Bogdan & Biklen 2003). The phenomenology analysis was used to describe and interpret the meaning of experience and identified critical information was grouped into major and sub-themes (Moser & Korstjens 2018). 'Phenomenology' is concerned with the study of experience from the perspective of the individual. This process is sometimes referred to as "open coding" and is commonly employed, whereby the researcher identifies and tentatively names the conceptual categories into which the observed phenomena would be grouped. The objective is to create descriptive, multi-dimensional categories that provide a preliminary framework for analysis. These emerging categories are of utmost importance as qualitative researchers tend to use inductive analysis.

In this study, the individual interviews were recorded and transcribed. For easy confidentiality and identification, all the recordings were labelled with pseudonyms and the date of the interviews. Then all the interviews were transcribed in detail. The individual responses were analysed, compared and categorised with the results of transcriptions of the document analysis and subsequently triangulated and interpreted to draw conclusions.



Data analysis comprises the task to discover models and tendencies in data sets, while data interpretation gives details regarding those observed patterns and trends in the data sets (Lencha 2012). Accordingly, the data collected using different instruments and techniques were analysed and interpreted at the hand of the stated study objectives.

Before the actual data analysis and interpretation, the researcher edited the data in order to minimise irregularities and maximise accuracy. To this effect, manual data editing was conducted in order to spot problems that evaded corrections.

Afterwards, the researcher “cleaned” the data. This involved a series of check-ups in order to separate invalid values and unusable values and determine the reasonableness of the distribution.

Furthermore, the researcher coded the data collected from information to be translated into values appropriate for further data analysis. Types of variables representing the factors to be studied, such as community involvement in water point initiation and installation, training of the water point committees, as well as operations and maintenance were identified and given values. Descriptive statistics were used in order to manage, interpret and analyse quantitative data collected through the questionnaire since it was a relatively small sample (Dooley 1995).

#### **4.6.1 Establishing validity and reliability**

.Validity and reliability are key aspects of all research. There are many types of validity, and many names have been used to define the different kinds of validity (Flannelly

Flannelly and Jankowski 2018). Campbell and Stanley (1996) define two major forms of validity, referred to as internal and external validity.

Validity in qualitative research can be achieved through different forms of cross-checking. Saunders, Lewis and Thornhill (2012:194), as well as Cresswell (2014), describe external validity as the ability of the study results to be defined beyond the immediate case studies.

According to Saunders et al (2012: 192) reliability refers to whether the data collection techniques and analytic procedures would produce consistent findings if they were repeated on another occasion or replicated by a different investigator. Both Charmaz (2000) and Silverman (2011) define reliability as the degree to which the findings are independent of the accidental circumstances of the research or whether the researcher would expect to obtain the same outcomes if he tried again in the same way.

In order to address the issue of validity and reliability in this study, the instruments were pre-tested and validated before the actual research. To ensure accuracy and trustworthiness of the research findings, the researcher made sure the informants were very clear on the nature of the research, for example why the researcher was there, what he was studying, how he would collect data and what he would do with it. This was also done to increase the genuineness and validity of the responses. The researcher also made use of more than two data sources, methods and instruments. Triangulation was employed in this study. Cohen, Manion and Morrison (2000:112) define triangulation as the use of two or more methods of data collection to study a particular phenomenon.

During the analysis, the researcher went back to some participants to reconfirm and obtain the informants' feedback about the accuracy of the information recorded. This was done to ensure that the researcher and the informants were in agreement and viewing the data consistently. Through member checks, the results and interpretations were confirmed and validated (Brink 1993:37; Moser & Korstjens 2018). In this way, the plausibility and truthfulness of the information can be recognised and supported. Furthermore, to avoid inaccurate or insufficient data, the researcher selected informants who were knowledgeable enough, could recall enough and were able to respond precisely to the questions that were asked. Taking into account of the limited scope of the study, which was one region out of fourteen regions in the country, the study cannot be generalised; however, the findings can be adapted in similar situations.

#### **4.6.2 Validity and reliability of data gathering instruments**

The three instruments of gathering data for this study were selected because of their extensive utilisation and their application in mixed-method approaches to research. By using these instruments, the researcher got both quantitative and qualitative data. In addition, this enhanced the validity and reliability of the data. In order to ensure reliability and authenticity of the information gathered through the interview guide, interviews were recorded and preserved; therefore, the re-analysis or the replication of the data can be rather easily implemented by any independent investigator. Direct quotes were used in the research, and this procedure can increase the reliability of the data and findings. Official documents such as reports, articles and dissertations were also utilised in the research and referenced.

To address the issue of data credibility and dependability, the instruments were developed and peer-reviewed to check whether the questions were relevant, unambiguous and clear (Moser & Korstjens 2018). The peers referred to were competent people in the subject field and who were conversant with measurement tool development principles and techniques.

#### **4.7 Ethical considerations**

This section outlines how ethical research issues were employed for the study, namely: access to respondents, informed consent, integrity, quality and transparency. Seeking permission to conduct a study from responsible authorities at the place where the study took place was ethically imperative. Access is about following the right procedures before conducting the study. This study accomplished access issues by submitting the study proposal to the University of South Africa Ethics Committee for moral approval and a letter to the Ministry of Agriculture, Water and Forestry to seek consent to conduct research.

According to Cresswell (2014:583), a study following a mixed-method approach should consider ethical issues that surface in both forms of inquiry. Amongst others, in quantitative research issues include obtaining permission, protecting the anonymity of respondents and communicating the purposes of the study, while in qualitative research issues such as avoiding deceptive practices, respecting culture, not disclosing sensitive information and protecting the identity of participants were highly considered.

According to the rules and regulations of the University of South Africa with regard to conducting research using human subjects, the ethical considerations which were taken into account during the course of the research are set out in the following section.

#### **4.7.1 Integrity, quality and transparency**

In general, ethics deals with beliefs about what is right or wrong, proper or improper, good or bad (McMillan & Schumacher 2001:142). Hence, ethical behaviour is vital in research, as in any other field of human activity (Welman et al 2005). In line with local, regional and international policies, the Namibian government requires that anyone researching in Namibia should apply for a research permit. Before any data were collected, the researcher asked for approval from the custodian Ministry of Agriculture, Water and Forestry (Appendix 4) to conduct research regarding water affairs. The letter requesting permission was accompanied by an ethical clearance letter from the University of South Africa (Appendix 5). Both letters were used to introduce the researcher to the heads of the region, constituency, communities and the participants themselves. The purpose and methods of this research were transparent to participants in the research from the start, through verbal introduction and the Unisa research ethics policy.

#### **4.7.2 Informed consent**

According to Welman et al (2005:181), ethical research embodies the moral necessity of obtaining consent to participate in research that is informed, rational and voluntary. Alasuutari, Bickman and Brannen (2008:99) remind us that it is morally right to respect the autonomy and privacy of the people recruited for research participation. All

participants were informed of the purpose, methods and intended possible uses of the research, and what their participation entailed. This was done to safeguard the participants and protect their rights.

As part of the informed consent requirements, the prospective participants were provided with all the information about the study. The participants in the study were informed of their right to withdraw at any point and their consent for the use of specific quotes was secured. Participation in this study was voluntary. No payment was offered to surveyed respondents and interviewees. They were provided with adequate information about the research and understood the knowledge which enabled them to make informed decisions to participate or decline. The researcher obtained both verbal and written consent from the participants.

#### **4.7.3 Confidentiality and anonymity**

Participants are provided with the assurance of their anonymity and privacy during all stages of data collection. The informants in this study were assured of confidentiality and were promised that their information would not be used for any reason other than the intended study. This view, affirmed by Dawids (2004:68), entailed that respect for persons is the most fundamental principle underlying research with human participants; therefore, it is important to obtain permission. To ensure anonymity of the participants in this study, their identities were protected by the use of pseudonyms and codes. Anonymity is the most secure means of protecting confidentiality and this was demonstrated when the researcher could not link a particular participant with the information provided.

Privacy and confidentiality were ensured throughout the research period. Polit and Beck (2008) reflect that all research with humans involves intrusion into the personal lives of participants and participants have the right to expect that the data they provided be kept in strictest confidence. All research materials and data obtained were secured and stored with only the researcher having access to the paper data and records. Electronic data are kept on password-protected computers. However, the information produced during this research may be used for presentations during research dissemination conferences.

#### **4.8 Conclusion**

This chapter presents a detailed account of the research philosophy and paradigm, and strategy and methodology according to which the research was conducted. The research was conducted through the use of the positivist and the interpretivist philosophy, utilising a mixture of quantitative and qualitative methods.

Validity and trustworthiness of the research were ensured through triangulation of the data, which was obtained through a questionnaire, key informant interviews and document review. In conclusion, the chapter also reports on the careful consideration of research ethics.

## **CHAPTER 5: RESULT PRESENTATION AND ANALYSIS**

### **5.1 Introduction**

The previous chapter presented the research methodology followed to obtain the information for the study. This chapter presents and analyses the research findings.

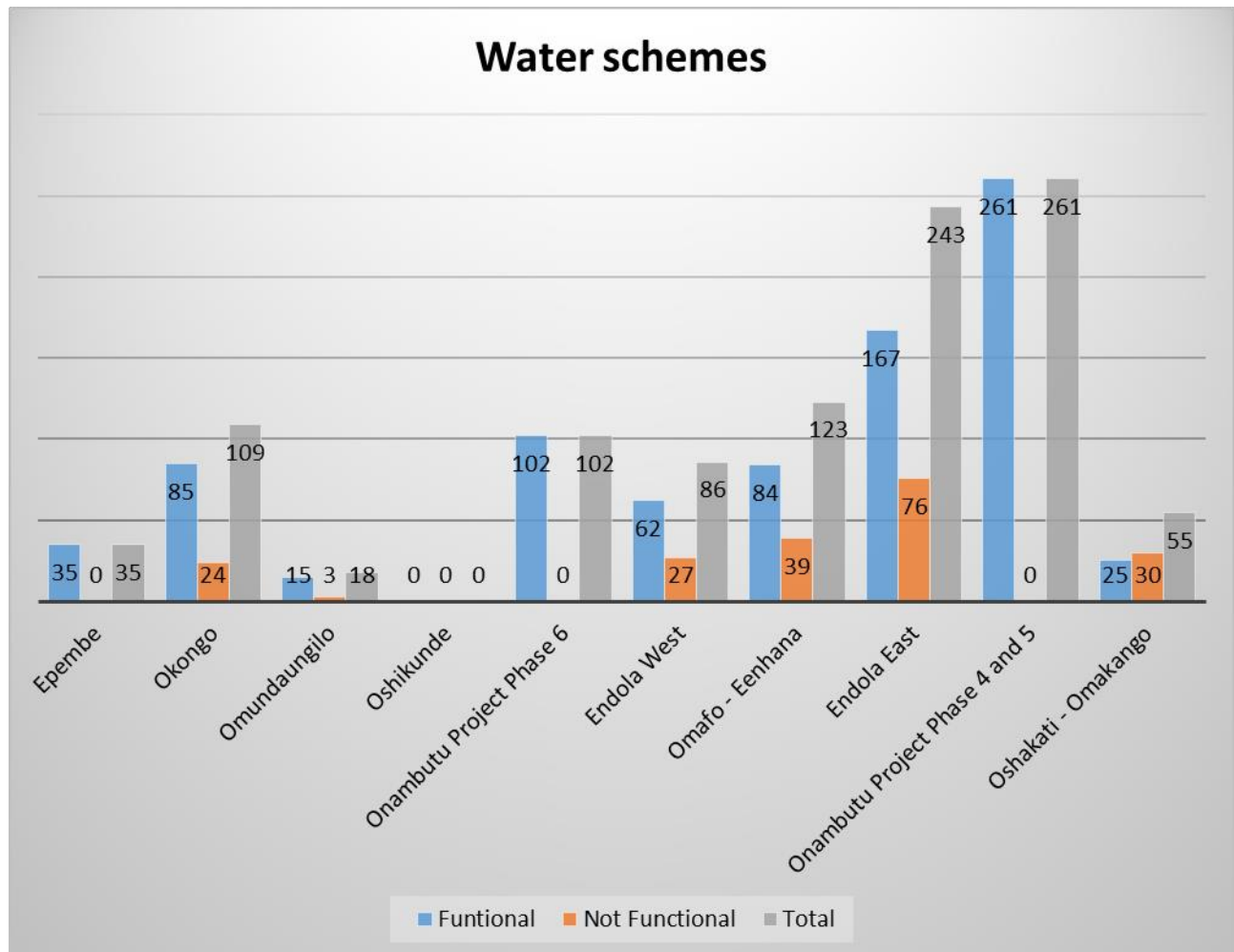
The findings from interviews, document analysis and questionnaires are presented below under the following main topics: rural water schemes in Ohangwena, interviewees' identification, roles and responsibilities of water point committees and officials, community involvement in water point initiation and installation, training of the water point committees, operation and maintenance, and coordination and support mechanisms. These topics emerged to be critical factors leading to the effective management of the rural water supply water points in the region.

### **5.2 Rural water schemes in the Ohangwena region**

There are ten water schemes in the Ohangwena region, and each scheme constitutes a number of water points. According to the information obtained from the officials and documents, there are 1 035 water points. This number could be more if Oshikunde water scheme provided the information which was requested. The number of water points in a scheme as presented in the figure below includes 836 functional and 199 non-functional water points. Forty water point committee members and ten officials from the Directorate of Rural Water supply in the Ohangwena region were purposefully sampled from these numbers to participate in the study. However, as indicated in chapter 4, only 39 Water



Point Committee (WPC) members and nine (9) officials of those sampled participated in the study. These WPC members were drawn from ten water schemes, four members each per scheme in the region.



**Figure 5-1: Functional and non-functional water points in the Ohangwena region**

The results indicated that 80,8% of water points are functional. Only 19,2% of water points are not functional. The Oshikunde water scheme did not provide the information with regards to how many water points were functional and non-functional in the scheme. Even

though many water points are functional in the region, the majority of people have to travel long distances (4–5 km) to access clean water. This is against the expected 2,5 km (Sasman 2010). That indicates that more water points need improvements or must be established to reduce the distances to access clean water.

Some of the functional water points have salt (saline) water, more especially in Omundaungilo, which is not suitable for human consumption. Instead, they are reserved for animals, while humans turn to the conventional ways of digging boreholes, *omifima*, which in many cases are risky and the water is not safe for drinking. With those results, one starts to question the level of involvement of the community members in the initiation and identification of the boreholes. Communities are well aware of their environment; they know where freshwater and saline water is. It seems the skills of the indigenous people were not considered or ignored if ever consultation and participation took place. Schrader (1996) indicates that for a long time development policy and planning neglected local knowledge and the interest of the people who it should serve and instead attached Western-based concepts to the Third World. This kind of planning from above or outside is insufficient for development to occur. For any development to be self-sustaining, it is of importance that the members of the target group participate in the designing of it and take into consideration local perspectives and interests.

### **5.3 Interviewees' identification, roles and responsibilities**

This study was undertaken to investigate the critical success factors of the community management of rural water supplies. In order to establish these critical success factors,

fifteen (15) respondents were purposefully interviewed to elicit their views. Six (6) of the interviewees were chairpersons of the water point committees (WPCs); five (5) were members of the Local Water Association (LWA); four (4) were officials (3 Rural Water and Sanitation Officers and 1 Head of the Regional Office) from the Directorate of Rural Water Supply in the Ohangwena region. The identities of those who were interviewed are withheld for purposes of confidentiality. Instead of using the real names of the interviewees, codes were used instead, such as respondent 001.

Interviews			
Interviewees	Chairperson of the WPCs	Local Water Association Members	Officials: Directorate of Rural Water Supply Ohangwena Region
Number	6	5	4

**Table 5-1: Interviewees**

The researcher looked at the issues around community involvement in decision-making, water point installation, financial and management arrangements, coordination and support mechanisms to assist water point committees and the community in general with regard to the effective management of the water points.

The first question asked of the interviewees concerned their roles or involvement in the rural water supply in the Ohangwena region. As stated above, the interviewees for this study included the members of the Local Water Association, chairpersons of the water

point committees and officials responsible for the establishment, maintenance and advising and assisting communities to efficiently and effectively manage their water points. The objective of this question was to determine the involvement of the interviewees in the provision of rural water supply in the Ohangwena region. The responses of the interviewees are hereby presented.

Local Water User Association (Respondent 001–R005): Five members of the Local Water Association were interviewed to provide in-depth information on the management of water points in their water scheme. As part of their responsibilities, they (R001–002) advise, convene and conduct meetings, identify challenges facing the community water points, resolve those problems, collect money for water payments from members and deposit cash at NamWater. This committee is expected to operate at the water scheme level. They manage a number of water points under a scheme. However, they reduced their operation at the community water point level. There is a deviation in their roles as LWAs; hence, there is a need to refocus and allow the WPC to manage water at the community water point level.

Respondent R003 said:

*I approve and give permission to those who want to apply for private water, stamp their application letter for consideration at the office.*

In addition, R004 indicated that they do water billing and take money to the office for payment. This should be the work of the chairperson of the WPC.

Respondent 005 stated:

*My role is to make sure that people are paying, if there is a pipe burst and attended to, as well as to find out why some water points are closed.*

Listening to the LWAs' responses versus what is expected from them; one clearly sees that there is duplication of roles between the LWAs and WPCs. Both of them are collecting money, convening meetings, attending to minor repairs and taking money to the office for payment. These conflicts of roles result in confusion among community members as they don't know who is responsible for what and sometimes they end up not knowing where to go or what to do. There is a need to detach the roles of the two committees. Also, there is no mention of the Water Point User Association in the new Water Resource Management Act 11 of 2013.

Chairpersons of the Water Point Committee (R006–011): Six chairpersons representing six water points were interviewed to determine their effectiveness in managing their water points. Out of six interviewees, three have managed their water points well, and the water points of the other three are highly inadequate:

R006 said:

*I am the chairperson and secretary of this water point, my role includes, amongst others, to keep records, lock and open the water points, buy and keep the tools that are needed for repairs the taps.*

R007 and R009 said more or less the same:

*I am a chairperson of this water point, and the only member [who] remained after other members resigned. As a result, I do everything. As a chairperson of the*

*committee, the responsibilities include inviting community members for meetings. At the same time as a secretary, [to] take minutes during meetings, record meter readers, and collect money.*

A similar study by Chowns (2015:5) in Malawi also state that users and managers resign due to WPC dysfunctionality as they are unable to have a say in shaping the institution. Users “exit” by refusing to contribute financially and managers “exit” by ceasing to be active.

R008 and 009 both responded that they collect money for the point payment and open and lock the water point after every member has collected water. They have introduced a card system for recording the number of litres of water collected by individual members. At the end of the month, they add the numbers to eventually determine the amount a member has to contribute. This system is thought to be the best because the payment is determined by the quantity of water consumed. At these water points, there is no flat rate of payment like at other water points. The flat-rate fee created problems at most highly indebted water points. The money contributed was not enough to pay for the water consumed.

This arrangement can be replicated to other water points, although the context is different, so it can be deduced that the strategy and management style followed are good. R007 believed the best way to run the water points was to introduce the card system. The card system was seen as effective because people would know how many litres of water they consumed, and they would pay accordingly.

R011:

*We need to introduce a system where people have to pay according to water use.*

R010:

*I am the chairperson of this water point, and my roles are to clean the area and chase away those who will try to damage the point.*

Again, there is a problem with role demarcation of the committee members. There is a need for community education on the importance of sustainable water management. Rules have to be introduced to avoid the waste and pollution of water and encourage water users to participate in the maintenance of water infrastructure (Republic of Namibia 2008b).

R 011:

*My roles are to see to it that people are paying, if there is pipe burst and attended to, as well as to find out why some water points are closed.*

The officials (R012–R015): Four officials from the Directorate of Rural Water Supply were interviewed to determine their roles and responsibilities regarding rural water supply management and maintenance in the region.

The aim of the government is to improve the provision of water supply in order to reduce the burden of collecting water travelling long distances, eliminate water-borne diseases and support basic water needs. However, there is a perceived deficit in government capacity to deliver and maintain services (Whaley & Cleaver 2017:57).

This is how they replied to the question asking about their roles or involvement in rural water supply in the region.

R012 said:

*I am a Rural Water, and Sanitation Officer and my role includes collecting information from the community, like if the community is not maintaining their water point as expected. If the office wants to close the water point or they want to bring a water tank, it is me who give[s] the community the information. I serve as the link between the office and community and vice versa.*

Furthermore, the Directorate of Rural Water Supply is tasked with the responsibility for providing water to rural communities in the communal areas, mainly for domestic use and livestock watering (Republic of Namibia 2006:5–6). However, none of the officials who participated in this study mentioned livestock watering as part of their responsibilities.

R013 and R014 indicated that their duties, as Rural Water and Sanitation Officers, included mobilising the community when it comes to rural water and sanitation in the region, facilitating meetings, training WPC members, establishing new water points and community awareness campaigns and maintaining the operation and maintenance of water points. They also do billing, see who pays, and who is in debt or not. The officials were expected to operate at the regional level, however, conflict was observed on the roles between the officials and WPCs.

#### **5.4 Community involvement in water point initiation and installation**

With regard to the installation of the water points, respondents were asked: Who initiated/provided the installation of the water points and what do you think could be done



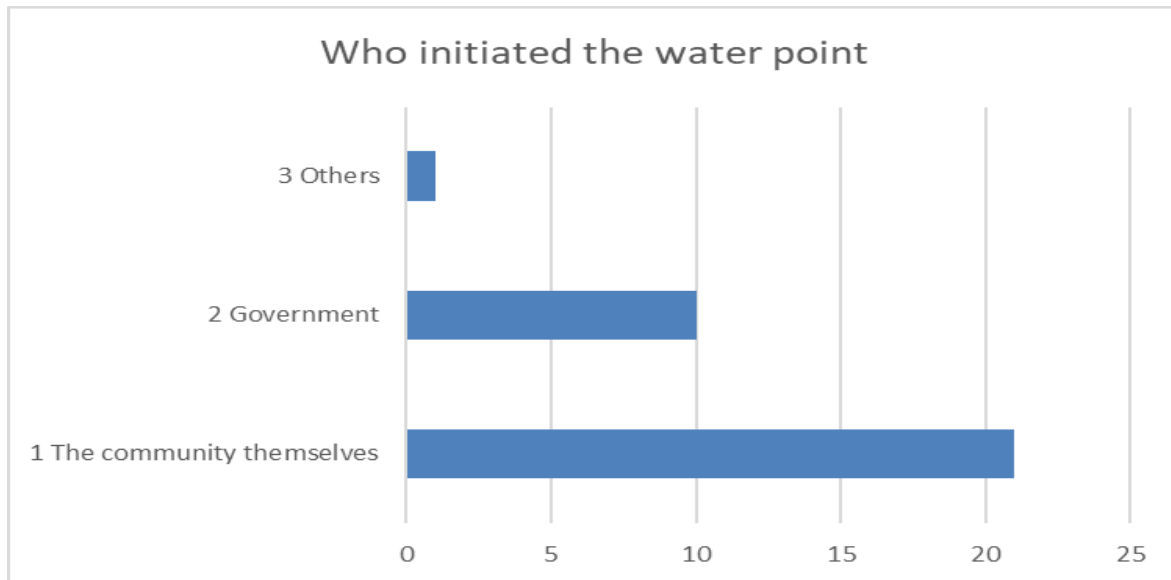
to improve the process next time? Who else do you think needs to be involved? Who needs to do what differently? What are the barriers?

The objective of these questions was to determine the approach that was used and whether the communities had been involved. The majority of the respondents interviewed indicated that there is a need for the government and communities to work together in the installation of the water points. It was established that, in some instances, communities were not consulted.

To back this argument, R004 said:

*The water points were installed by the government. Communities were not involved, we only show people marking where the pipes will be laid, and finally, we were given water. There were two water points in our area; however, [they] are no longer working.*

Furthermore, the information from the questionnaires shows a different picture.



**Figure 5-2: Initiation of the Water Point**

The results in the figure above show that communities (24 respondents) were involved in the initiation of the installation of the water points through presenting their water needs to the government. Thirteen (13) respondents indicated that government initiated and installed the water points. This was confirmed by two officials who participated in the study. Although this respondent could not remember whether the community was consulted, R011 reported that, “the water points were established by the government”. R014 indicated that

*the process was fine, workshops/meetings were conducted before the establishment of the water points between the community members and government official[s].*

Although meetings were held with the communities, they were simply for informing the communities about the establishment of the water points. Community involvement was

mainly to agree to the predetermined areas and water point technology that would be used.

Regarding the future, R005 said:

*I think what needs to be done is to warn and educate the kids who are destroying the water points and protect the water tanks. Ideally, fencing off the water tanks.*

This confirms the above statement: if communities were consulted, they could have provided other measures of protecting the water points.

It appeared that there was a lack of full community participation in the initiation and installation of the water points. Communities were used mainly as instruments for the “smooth” implementation of the water projects in their respective areas other than as ‘equal’ implementation partners (Rural Water Supply Network 2017). Seven officials responded that the initiation and installation of the water points were the responsibility of the government. In general, community involvement was minimal. The literature caution that in rural water supply projects community participation is critical for the sustainability of the rural water supply (Beyene 2012:25). Hence, participation should begin from the initial phase of the project (Hutchings et al 2015). That means that communities should take the final decision on important aspects of the planning and implementation of water supply schemes in sustainable rural water supply systems (Daemane 2015). Communities should select the site and type of technology and constitute the main participation component at the initial phase of the project and then be fully involved in the supervision of the construction (RWSN 2017; Daemane 2015).

When it comes to the establishment of the water scheme, this is what happened, according to R015: the directorate of water supply played a significant role in the water supply sector. They constructed the main pipeline through the contractors via the tendering process. While the pipeline was being constructed, they sent officials attached to the contractors to monitor the implementation of the pipeline to see if the contractor was really doing what was ordered. This indicates that the community is excluded when it comes to construction and establishment of the main pipelines or water scheme. It is ideal to involve stakeholders from the beginning of the project, rather than them taking on a mere token role at the water points. They need to have a bigger picture of the project before it is passed on to the village level. This equitable improvement of water services can only be achieved by the combined efforts of the government and the beneficiaries, based on community involvement and participation, the acceptance of mutual responsibility, and by outsourcing services to supply and manage the rural water supply on behalf of the community, where necessary and appropriate, under the control and supervision of the government.

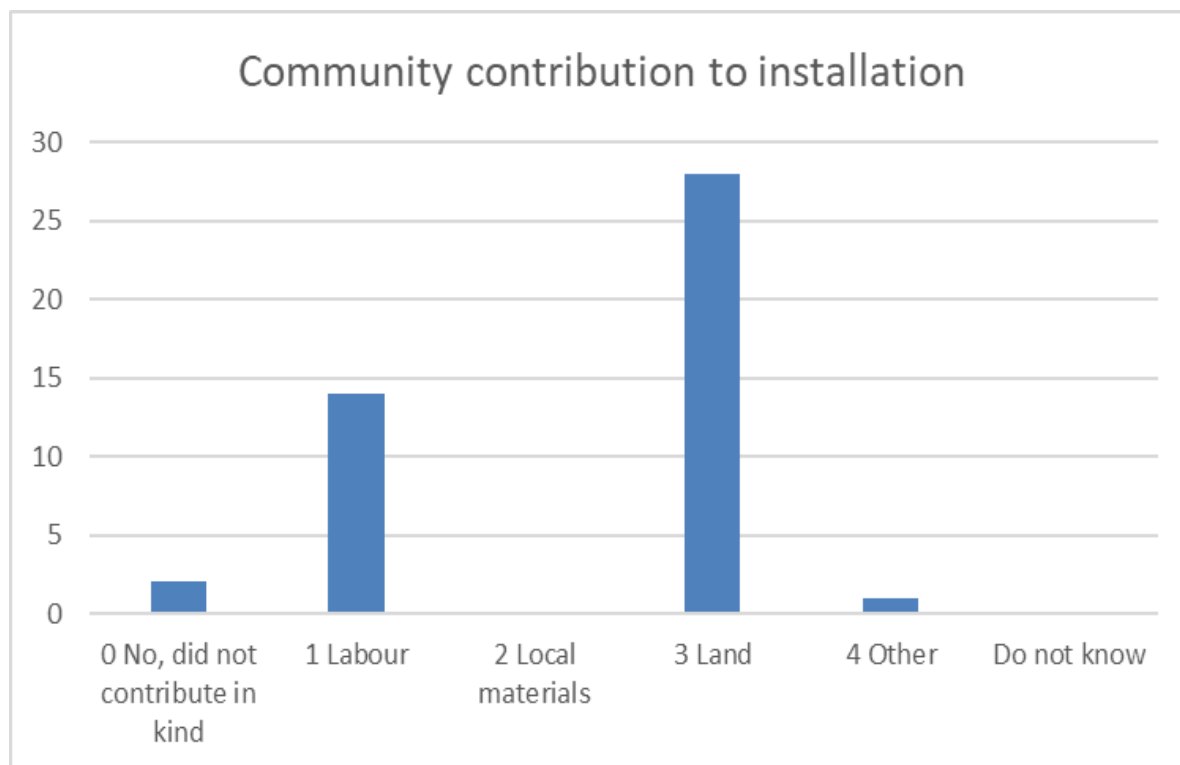
There were further contradictions between the responses received from the officials and reactions from the committee members. According to the officials, the process followed when initiating and installing the water points was fine. They indicated that they conducted public sittings and meetings in conjunction with the community members to identify places where water points were to be erected, facilitated the election of the Water Point Committees (WPC) and trained the WPC members who were elected on water point management issues. On the other hand, the committees felt that consultation was limited, and at some places, no consultation took place at all. There were inconsistencies in the

whole process of initiating and installing water points in the study area. In some areas, community members were paid for digging trenches while the digging was free in other areas.

The majority of the respondents indicated that they were not fully involved in deciding what and where they wanted the water point to be erected, and the type of water point they wanted in terms of the type of technology, management and financial arrangements. Only a few of the respondents indicated that they were involved, while some did not know or could not remember any of the decisions regarding the technology employed, management arrangements and financial arrangements. On the opposite side, four officials indicated that community members were involved in decision-making, while three officials responded that community members were not included. According to Whaley and Cleaver (2017:59), ensuring the technical dimension of the design and implementation phase is crucial before the water point installation for deciding on appropriate technology with input from the community; the quality of the parts and other materials; and the quality of the installation, all of which are significant.

Almost all the non-official respondents mentioned that their participation was on labour and contributed land before the installation of the water point. The figure below indicates

the level of the community contribution to the installation of the water points.



**Figure 5-3: Community contribution to installation**

The respondents indicated, amongst others, that communities contributed in different forms such as ideas, labour in digging the trenches in the case of the pipeline and by providing the land (through the headman). One of the respondents indicated that at some places the government, instead, identified the site, contracted the company to do the digging, and installed the water point.

To back this argument, R004 said:

*The water points were installed by the government. Communities were not involved, we only show people marking where the pipes will be laid, and finally, we*

*were given water. There were two water points in our area; however, [they] are no longer working.*

In support of the above statement, three officials also indicated that the community did not contribute anything, while nine officials said the community donated land. This contradicts the policy on which government planned to support the community phase by phase. For example, the plan was for the community to pay 0% in 1999, 20% in 2000 and eventually 100% in 2003 (Whaley & Cleaver 2017), but here the results are indicating that some had to pay from the initial stage.

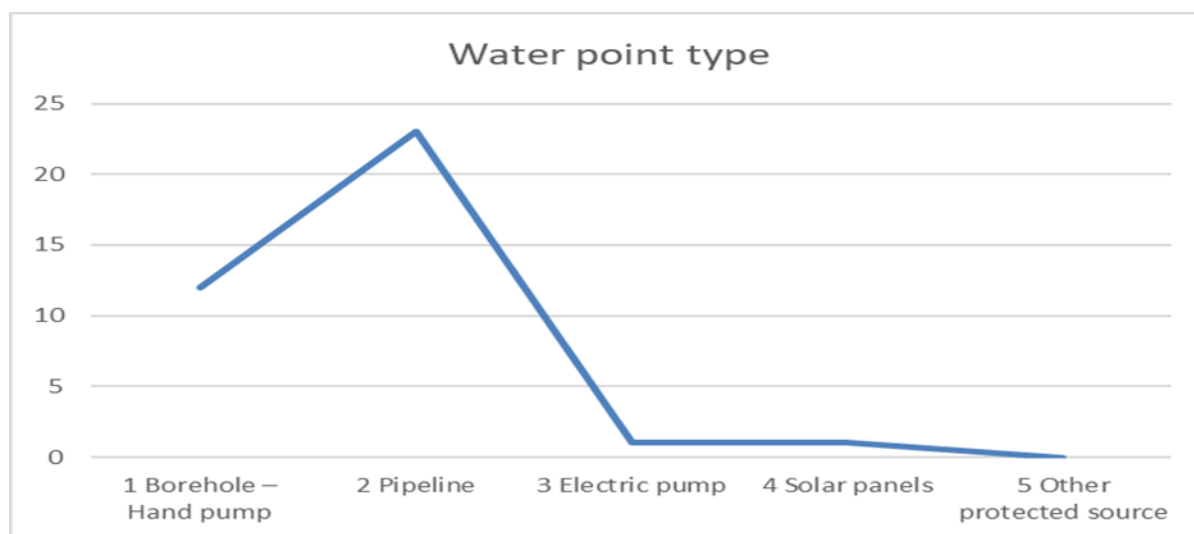
According to the RWSN (2017), community participation take the responsibility for managing the water supply systems by themselves. This is one of the indicators for sustainable community management in rural water supply schemes. In doing this, individuals and communities are encouraged to improve their living conditions and to contribute to the development of the country.

Because of minimal community participation on the installation of the water points, some water points had not been operating for a long time due to lack of contributions from the community. Some water points were closed by the authority (government) because they were highly indebted. The reason for the lack of a monthly cash contribution during operation was likely due to poverty and sometimes due to the choice of the communities in favour of their prior alternative sources, which mainly were unprotected sources. According to Sasman (2010:1), the rural water supply has become costly to the government and often is unaffordable to the rural poor and vulnerable, who are mostly

dependent on subsistence farming. However, without the necessary revenue, the service providers will be unable to continue delivering the expected water supply and sanitation services. He further suggested government should supply subsidies or cross-subsidies as a way of recovering the full financial cost in low-income rural areas at least for operational and maintenance cost.

#### 5.4.1 Water point type and functionality

Respondents were asked to rate the type of water point and functionality in terms of type. Their responses are presented in Figure 5.4.



**Figure 5-4: Types of water points**

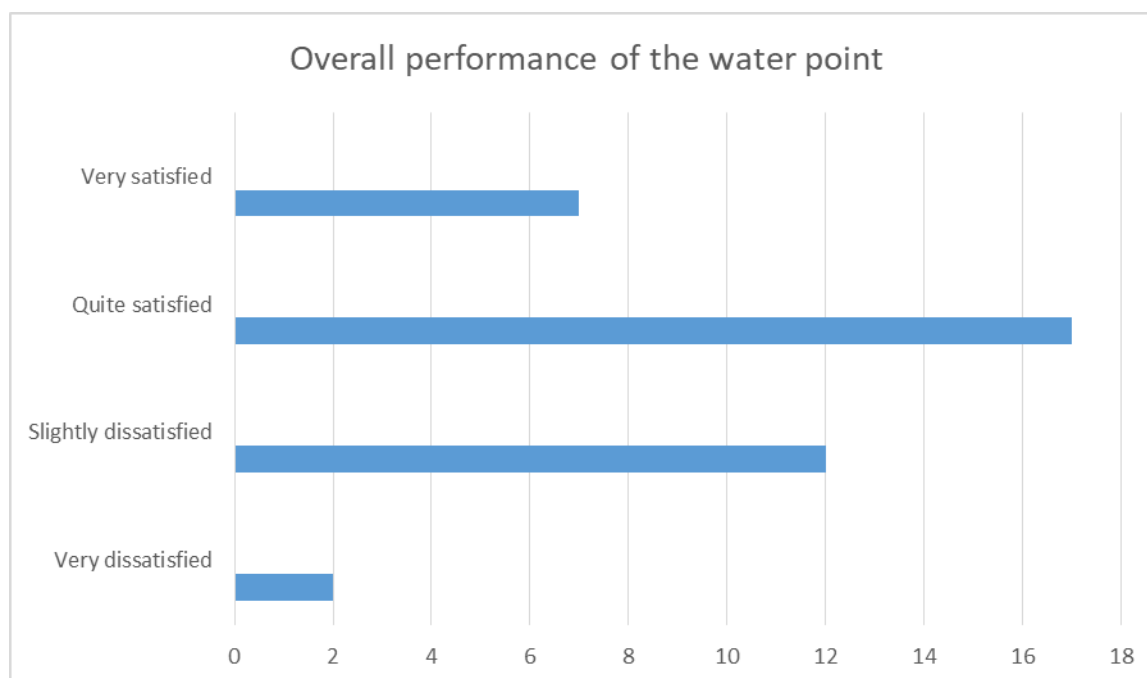
The majority of the respondents, both WPC and officials, were of the opinion that diesel engines for borehole or hand pump are the most manageable. However, many of the respondents use diesel engines and their response could be influenced by the fact that they do not know how other functions. At the same time, the pipelines emerged as the



most sustainable type of water point. Another official instead indicated a need to do away with community water points, especially the pipelines. Instead, the government should provide water meters, and individuals should establish their own private water. There is a challenge when it comes to payment on the community water points compared to private water. There is also no monthly payment at the boreholes, and users only contribute when diesel is finished or a breakdown of the engine occurs.

A study conducted by Phiri (2017) in Malawi, however, found solar-powered engines to be more manageable and sustainable for rural water provision. It is critical that communities are given the choice to determine which water type and service levels are acceptable to them. Furthermore, literature (Joseph et al 2019) points out that water point functionality is attributed to two interlinked domains, branded the hardware and software of rural water supply systems.

Furthermore, regarding the functionality of the water points, three were indicated as partly functional and 35 as functioning well. Five officials indicated that water points in the region were partially functional, while four indicated good functionality. The study by Chowns (2015) in Malawi finds that the key influences on water point functionality are both technical and managerial. The technical aspect is related in particular to water point type and installation quality, while the managerial issue concerns the most significant factors with regard to the availability of funds, skills and incidence of theft.



**Figure 5-5: Functionality of water points**

In general, the respondents were from slightly dissatisfied to quite satisfied with the overall performance of the water points. According to Whaley and Cleaver (2017:63), a well-functioning water point committee is assessed based on the committee's performance, frequency of meetings and ability to ensure operation and maintenance. In addition, the following attributes can contribute to the well-functioning water management arrangements: the existing of authoritative leadership, capacity to make and enforce decisions including rules-in-use, collecting water payments, managing and accounting for funds, undertaking and/or securing maintenance work, representing all users in a way that ensures equitable access to water supply, being recognised as legitimate by both users and the local governance structure, being aware of roles and responsibilities and the roles and responsibilities of others and being meaningfully linked to other relevant stakeholders.

#### **5.4.2 Management of the rural water supply**

With regard to the management of rural water supply points, respondents were asked about their views on the management organised at the time. How effective is the current approach? What do you think could be done to improve it? Who needs to do what differently? What are the barriers?

Furthermore, the researcher was interested in finding out who was responsible for the day-to-day management of the water points. Almost all the respondents indicated that the daily management of the water points was in the hands of the community themselves, and managed by the WPC on behalf of the community.



**Figure 5-6: Water point at Onambutu Project phase 4 and 5**

The Water Point Committees were elected by the community members to manage the water points on their behalf. Nearly half of the respondents, both WPC and officials, were slightly dissatisfied with the management arrangements of the water points. Almost all the water point committees, except five, already existed. Five water point committees were created after the installation of the water points. All the respondents indicated that their water point committees were partly active.

Respondent 007 said:

*Since 2007, I am a member of this water point and there [was] no election held to elect new members.*

In backing the same argument, R013 responded:

*I think we have tried in many ways to improve the management but failed. Community water point should be done away with on pipelines. Instead of establishing community water point, the money budgeted for that purpose should be used to buy water meters for private water, individuals buy their pipes, and it will help people to take care of their own water. The current management of water point is currently not working.*

The most important thing is monitoring.

Backing this argument, R009 said:

*I believe what is critical for the effective management of the water points is monitoring/visits by the officials. It worked well in the past when they used to visit us. People will see the seriousness of the government. People are misusing water*

*and need to be warned to take water seriously. There are frequent breakdowns of the water point.*

Sharing the same sentiments, R012 believed that continued monitoring, especially of the pipelines, would help in identifying the problems facing the communities in terms of managing the water points and this should be discussed with the community. Monitoring should at least be done every three to six months. There was also a need to enforce responsibility among the community members. If this was not done, people would relax. While this sounded a good thing to do, it was mentioned that the Directorate of Rural Water Supply in the region felt challenged in carrying out monitoring.

For effective monitoring to take place, staff members have to be paid for subsistence and travel (S&T), fuel and overtime for staff to go to do monitoring at the water points. This is what the government is unable to do (because of the need for cutting costs).

The other critical thing that was mentioned concerned the continuous training of committee members, despite training having been provided to all committee members after appointments.

It is government policy that local communities should eventually take over the management of most of the rural supply of water from RWS (Falk 2016). The role of the water point committee relates to the management, administration, operation, maintenance and repair of the water point (Harvey & Reed 2007; Whaley & Cleaver 2017:58). In order to do this, it is proposed that the WPC must undertake a number of regular activities, including holding meetings, setting, collecting and saving financial

contributions from users, devising and enforcing rules around access and use and undertaking or securing maintenance and repair work (Republic of Namibia 1993). However, the breakdown of the committee can jeopardise the operation and maintenance system, which is designed around the committees (Whaley & Cleaver 2017:58).

In general, all the respondents agreed that the management arrangements or structure need improvement. The management structure of the water points includes the chairperson, deputy chairperson, secretary, deputy secretary, treasurer, deputy treasurer, caretaker and deputy caretaker, as well as advisors for every position. The management arrangement was good because each member had someone under him/her, and they all received training.

R009 explained:

*The management arrangement was good; it consisted mainly [of] the elders, such as the chairperson, and treasurer. Young people move around: today here, tomorrow there. The payment of the water consumed depending on the cubic meters used. But, now, people are no longer paying for membership.*

This arrangement was lauded to be good. However, the respondents emphasised that the effectiveness of this arrangement was short-lived. In most of the committees, there were only one or two members who remained.

Most committees in this study do not hold regular meetings. Respondent R001 indicated that “*after three years we did not meet*”. As a result, there is a lack of trust among community members.

R004 mentioned:

*They started insulting us that we are misusing the money when they see me doing something; they say I am using their money.*

There are a number of reasons for community members not meeting anymore. It is believed that one is the new arrangement introduced by government to allow individuals, especially those with private water, to go and pay by themselves at the office. Before that arrangement, they used to bring money to the treasurer, and he/she took the money to the office as a collective. This is believed to have been the reason people used to attend in large numbers when a meeting was called.

R001 reported that, following that arrangement:

*[they] did not see them anymore. By then the water points were the only source of water. The people I see now [are] only those who want a stamp to go and apply for private water.*

Researchers say that weak communication and accountability between the members and users leads to mistrust. A similar study in Kenya by Leclert et al (2015) has observed ineffective communication and accountability amongst the water committees. Meetings are critical because the committee can alleviate fears amongst the users by reporting on their incomes and expenditures concerning the water system. Through regular meetings, committees receive and discuss complaints or deal with other issues with users. In the absence of regular meetings, users will have little trust in the committee members and are hardly willing to pay for water services.

Although the management arrangement was supported by all respondents, they also highlighted some drawbacks. R003 indicated that the government should give incentives to the committee members who were currently volunteering to do the work. This respondent (R003) explained:

*Few years ago, some committee members went on strike demanding for payment, and after that many members never resumed their work.*

A study by Bosworth et al (2018) in the Onesi constituency, Namibia recommends that for one to volunteers one must be able to read and write and be in good health to get to the site each day. Furthermore, they indicate that volunteering comes with its own risks: it can take volunteers from their crops and livestock, the bread and butter of the farming-dependent community.

Amongst the recommendations are mentioned a lack of incentives for the committee members. R002/3 said: “There will be no commitment without incentives”, and respondents explained that committee members spent most of their time and resources. A study by RWSN (2017) in Abidjan finds that incentivising the water committees can lead to the sustainable management of the water points. Committee members are paid in cash or in kind. This is fundamentally meant as motivation and not a wage.

There were no periodic elections of the committee members held in all the water points that took part in the study.

R001 stated:



*Since I was elected more than 20 years ago, no replacement/election was held. In some occasions, only filling the gap left for those who have resigned.*

Another respondent said that they were told that they would serve for five years, but up to the present, they remained committee members.

R004 said:

*I am the only member around [and] when I get sick, and it becomes a problem.*

The problem is that these committee members are never replaced after being elected. Many of them were tired of serving. R004 believed that the government should do its work instead of relying on committee members (volunteers). As part of good governance and conceptualisation of institutions (Whaley & Cleaver 2017:59), among others, caution that there is a need to periodically re-elect the committee in order to avoid capture by the local elites and ensure there is no hindrance to democratic practices.

Some members had a low level of education.

R002 stated:

*We also need educated people in the committees.*

Centralisation of functions at the regional and head office was also mentioned

R002 said:

*The most important thing is to decentralise the offices or have mobile offices.*

Gender balance in the management structure also lacked, as the majority were female members.

R002 said:

*We need to have males and young people in the committees. Males do not want to volunteer.*

A similar challenge was experienced in the study by Leclert et al (2015:41) in Kenya. After time volunteers lose commitment or no longer have time to serve their community and carry out their functions on a voluntary basis. As a result, young and well-trained committee members often leave for better and paid work opportunities.

R006 indicated that management is the key to the functionality of the water point:

*The reason our water point has been functioning and others closed is because we have order at our water point. We have the time to open and close.*

This water point was not open throughout. A good relationship between the WPC and community members was described: “We nominated a caretaker every month and collect[ed] money from members to pay him/her.” The only challenge for this community was that their water tank was not working properly, and they needed a new tank. A study by the RWSN (2017) in Olam Kala, Uganda concluded that good cooperation and understanding between users and user committees led to proper operation and management of their water facility. In this case, both users and committees play their roles (fencing off the water facility, keeping it clean, collecting user fees and repairing it whenever needs be).

The responses clearly show that there is a need for improvement in the management of water points and rural water supply in the study area. In general, there is a feeling that

the government should write off the debts and re-open the water points that have been closed for a long time. The following are critical factors suggested by the respondents: incentives for committee members, election of new members, training of the committee members, decentralisation of offices, regular visits to the water points and introduction of the card system.

### **5.4.3 Financial arrangements**

With regard to the financial arrangements of rural water supply/water points, respondents were asked about their views on the way in which the financial aspects were organised at the time. How effective is the current approach? What do you think could be done to improve it? Who needs to do what differently? What are the barriers?

The committee members and the officials expressed opposing opinions with regard to the financial arrangements for the water points. The committee members felt that the financial arrangements for the water points were fine, while the officials felt that there was misappropriation of money by the committee members.

The respondents were asked to rate their level of satisfaction or dissatisfaction with the financial arrangements in general. Nearly half of the respondents from the survey were slightly dissatisfied, while seventeen were quite satisfied with the financial arrangements for their water points.

Previously, the arrangement was for each household or user to contribute money towards the maintenance and operation of the water point. The contribution included membership

fees and utilisation of water. The money was collected by the treasurer who, in turn, took it to the office for payment. This was good, especially for the elderly and people with limited income. However, the government realised that there was misuse of the fund by people entrusted to collect the money and pay on behalf of the community members. This resulted in massive debt concerning water points, which eventually led to the closure of many water points.

R0012 stated:

*About N\$200 000.00 was misappropriated at one water point. The whole community collected money for each water meter and [brought] it to the treasurer; it was her responsibility to take the money to the bank. If there is no monitoring, you will experience this kind of instances. The consequence of this incident led the government to give the green light to private water owners to record their water meter and go pay themselves.*

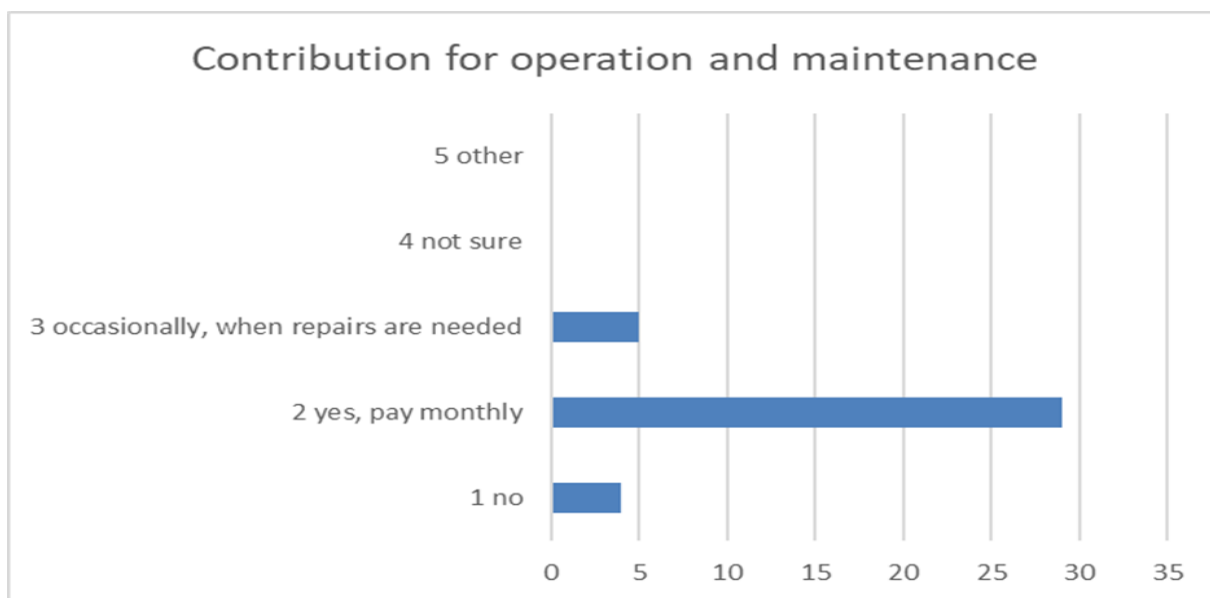
A study by Chowns (2015) in Malawi also notes that misuse of funds by WPCs emerged as a common problem.

As a solution to the problem of misuse of the money, the government was forced to introduce a new way of paying for water. Individual members/private water owners were asked to pay their water utility themselves. Although the new arrangements were applauded by some quarters of the community, the challenge remained with the elderly who were unable to travel the distance to go and pay.

In backing this argument, R002 explained:

*The financial arrangements are good, it reduced the burden on the Treasurer [of] keeping money at their houses, however, the old and low-income people will have problem to take money at NamWater, due to long distances.*

The most important critical factor for the effective management of the rural water supply is the monthly or yearly community contribution in cash or labour for the operation and maintenance of the water point (Beyene 2012:32). The study seeks to find out whether there is a financial contribution from members towards the operation and maintenance of the water points. The respondents were asked to indicate whether they contributed financially to the operation and maintenance of the water point.



**Figure 5-7: Contribution to the operation and maintenance**

Although it is required for members/users to contribute to the operation and maintenance of the water points, four respondents indicated that they did not add anything towards the

operation and maintenance of their water points, while 29 members answered that they contributed monthly to the payment of water usage and made a yearly contribution for membership and administration. The study by Fielmua in Nadowli, Ghana, reaches the same conclusion; generally, it is found that communities do not regularly contribute towards operation and maintenance but only contribute as and when repairs are needed. After repairs, the remaining money (if any) is saved with the chairman of the water committee. From the interviews conducted with users, 67,4 per cent of respondents do not know how the remaining money is spent. This often generates conflict when households are required to pay for subsequent repairs.

Furthermore, a study by RWSN (2017:469) concludes that the majority of communities were often reactive in nature, in other words contributions are only made when a hand pump breaks down. As a result, where communities only contribute when the hand pump breaks down, it is also common that such contributions are often not adequate to cover the full cost of repairs (spare parts and labour) and thus hand pumps are never repaired. To avoid situations of being unable to afford the cost for repairing when there is a breakdown at the water pump or boreholes, communities are encouraged to contribute towards the maintenance of hand pumps once monthly to avoid being overburdened once the hand pump broke down.

In many cases, the membership and administration contribution is used to buy materials for minor repairs, or sometimes for major maintenance of the water points. Five respondents replied that they only contributed occasionally when repairs were needed. Inconsistency was observed in that the charge for water utility and membership fees was

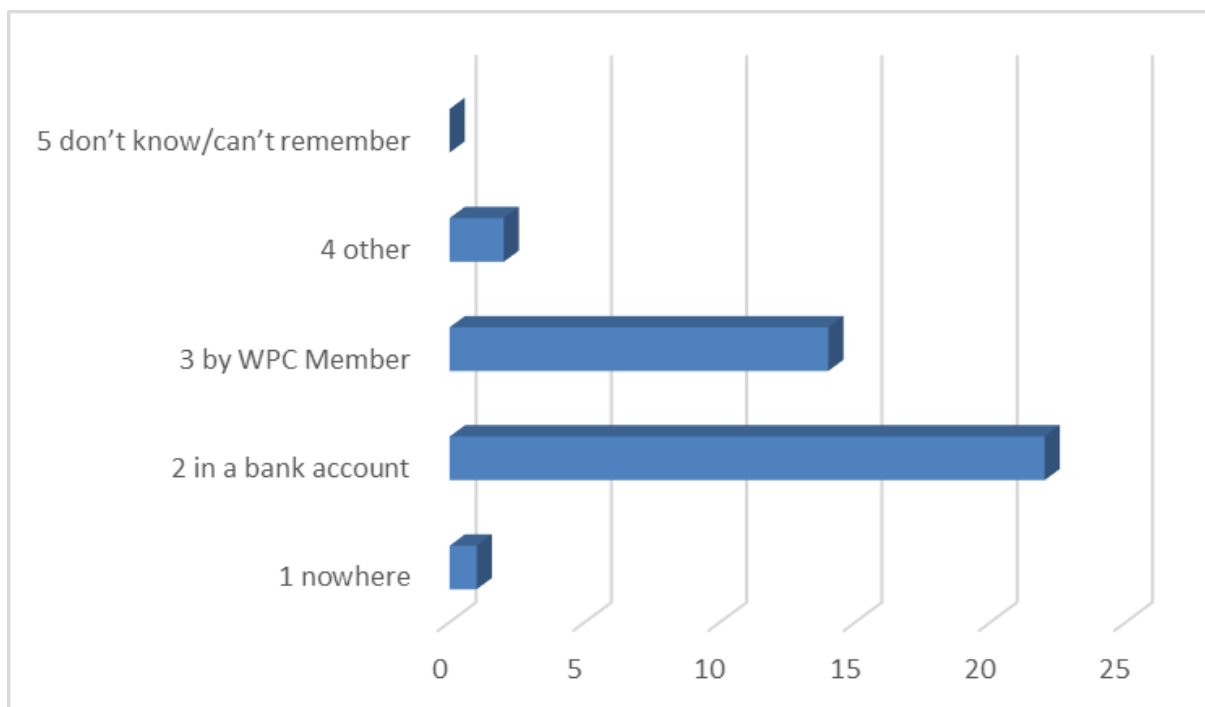
different from water point to water point as well as from region to region. As stated in the National Water Policy, the Minister of Agriculture, Water and Forestry will determine tariff policies in consultation with the service providers and the public, taking the tariff policy principles into consideration (Republic of Namibia 2013). This has not been put into force yet, as different water pricing is experienced at various water schemes. In many cases, contributions were far less than needed. The off-loading of government responsibility to the communities will leave more communities and poorer members vulnerable.

Another challenge was that individuals recorded their meter readings by themselves; if they were not honest, they would only record the numbers they wished or were able to pay. This new arrangement hampered the work of the committee members. It was difficult to know who had paid and who had not paid. This led to the situation that some respondents are concerned about the imminent closure of water schemes due to increased debt.

R002 stated:

*I am aware that not all people go and pay; the debt is increasing in the water scheme. This water scheme has about N\$ 2mil debts.*

About 95% of the respondents in the survey carried out in the first phase of the study, indicated that water points had water facility bank accounts with banking institutions. However, one of the challenges expressed by some respondents is that there was a problem with keeping money. R005 said, *“It is tempting”*. The question was asked where the money contributed to the operation and maintenance of the water point was kept. Figure 5-8 provides the answers.



**Figure 5-8: Water point banking**

Twenty-two WPC members responded that they had opened a water facility bank account; fourteen replied that their contribution was kept by the Water Point Committee members, and four members replied that their contribution was kept at undisclosed places (others) and some respondents did not know where the money was kept. All nine officials indicated that the money was kept in the bank. They also suggested that a report is produced on how the money contributed was spent. Only two WPC members and three officials responded that they were not aware or could not remember whether communities were informed about how their money was spent. It is critical that financial management forms part of the training pack of the committees to ensure responsibility and accountability.



In general, the responses to the question indicated satisfaction with the payment arrangements. However, they perceived some barriers to the way finances were organised. There was a need for regular auditing and checking book records. There is a lack of financial management capacity amongst the water committees in the study area. A study in Kenya by Leclert et al (2015:41) identifies that many community groups have not put in place the basic management processes to operate effectively and professionally, such as book-keeping, record-keeping and payment-collection systems. Furthermore, the lack of capacity, adequate procedures and oversight can lead to mismanagement, with committee members abusing their positions for private gain.

The monthly responsibility should lie on committee members themselves, while the government should be involved on a yearly basis. In order to effectively manage the finances of community water points, it is recommended that a coaching system for the community members should be introduced; NamWater offices as to be decentralised in the region, and constituency or mobile offices should be instituted. As a result, travelling long distances would be reduced. The reason why communities have huge debts is that the distances made it very costly.

R002 felt

*that the most important thing to be done is to decentralise the offices (by bringing offices closer to the community, as in the settlement areas.*

By doing so, people would be encouraged to go and pay for water, because the distance would be shortened.

Their tariffs are not based on real costs or on government guidelines, and often are contradictory. Such inequality of tariffs undermines the willingness to pay among users.

Respondent 012 voiced his opinion:

*I believe what is critical for the effective management of the water points is [for] NamWater to take full responsibility, especially in the rural areas, to collect money from the community. It will prevent members [becoming] involved in misappropriation of money and for the safety of those who keep/collect the money. A trial was done some years back: NamWater comes with a car armed with security personnel to collect money. Community come at a certain point, have their meter calculated and pay right there. It was effective. Another critical factor is to decentralise offices, establish an office in the remote areas. That will reduce/shorten the distance. At the moment, more money is [spent] on transport than the amount paid on water. NamWater add interest if [we] [do] not pay on time.*



**Figure 5-9: Community satisfaction with financial management**

Both sets of respondents were asked to indicate or rate their feelings about the financial management of their water points. Although the majority of the respondents indicated quite satisfied, the interview results – especially by the officials, showed the opposite. The current financial arrangements are characterised by misappropriation of money contributed by the community members, lack of contribution by members and high debts of water points. Finally, all the respondents valued the benefits of a functional water point, and all 38 respondents replied that less time is spent in fetching water, and only a few waterborne diseases are reported.

## 5.5 Training of the Water Point Committees

The training of the WPC members is critical for the operation of the water points. Training provides knowledge about how to operate and maintain the system. It also increases the awareness of the communities about willingness to sustain the system. Upon being elected as committee members, they are given basic training on community water points, followed by specific training.

To the question of whether committee members received training on their responsibilities as members when appointed, 29 of the respondents said that they received training and nine did not. The nine officials indicated that training was provided to all water point committee members. According to R001, they were taught “*how to manage, maintain and operate the water points*”. Further discussion with the water committee members revealed that training was only provided once they became members of the committees. However, many members preferred to be trained because they received a per diem allowance during training. Backing this argument, they also indicated that they were taught but needed refresher training.

R004 referred to lack of training:

*The last time we were trained was in 2014. Many committee members were discouraged because of volunteerism. Everything, I do I use my own money and airtime when making calls. Pay for our own transport. The committees are no longer functional.*

The reason was that the committee was comprised of volunteers. They worked without pay and endured and suffered insults from community members.

During training, members were also taught how to do minor repairs at water point level, while major repairs had to be reported to the office for the government to do such major repairs. The study conducted in Kenya by Leclert et al (2015:42) found out that the capacity gaps among community groups are partly the result of inadequate capacity building and follow-up by NGOs. Although training on basics of operation and maintenance and financial management before handing over of the water points are provided to most committee members, it is clear that such one-off training is not sufficient to ensure sustainable management of the new infrastructure.

Despite the training given to committee members to do minor repairs, it became apparent during the discussion with the committee members that some committee members had no experience of how to manage and do maintenance of the water supply. In many instances, some mentioned that there was no money to buy the parts needed for repairs. It was said that at least one person in each committee had been trained to do minor repairs.

If the community lacked training in the operation and maintenance of the water points, they did not take care of the water supply system. Some respondents indicated that there is a great need for community education or raising awareness regarding the importance of taking responsibility or protecting the water points and the roles of the committee members. Some communities vandalised the water points. According to Leclert et al

(2015:41), the capacity to work as an organised group and operate the system is generally low. Furthermore, they emphasise that low literacy levels and insufficient technical skills limit the committee members' ability to run a water system efficiently, ensure its operation and maintenance and allocate clear roles and responsibilities within the group.

Although it was mentioned that the committee members could make rules and regulations concerning their respective water points, it was observed, after discussion with the members, that not all water points had rules and regulations with regard to punishing people caught vandalising the water points. However, this was not the situation at some water points, which were perceived to be managed well.

The training packages developed for training the water committees in Namibia are composed of topics on the relationship between water and health, the tasks of the water committee, and the role of the caretaker, community and water committee (Republic of Namibia 1993). The handbook aims to provide water point committees with the necessary knowledge and skills to enable them to function properly. However, critical topics on basic financial management, conflict resolution, emotional intelligence and leadership are missing. These are critical for the effective performance of the water committees.

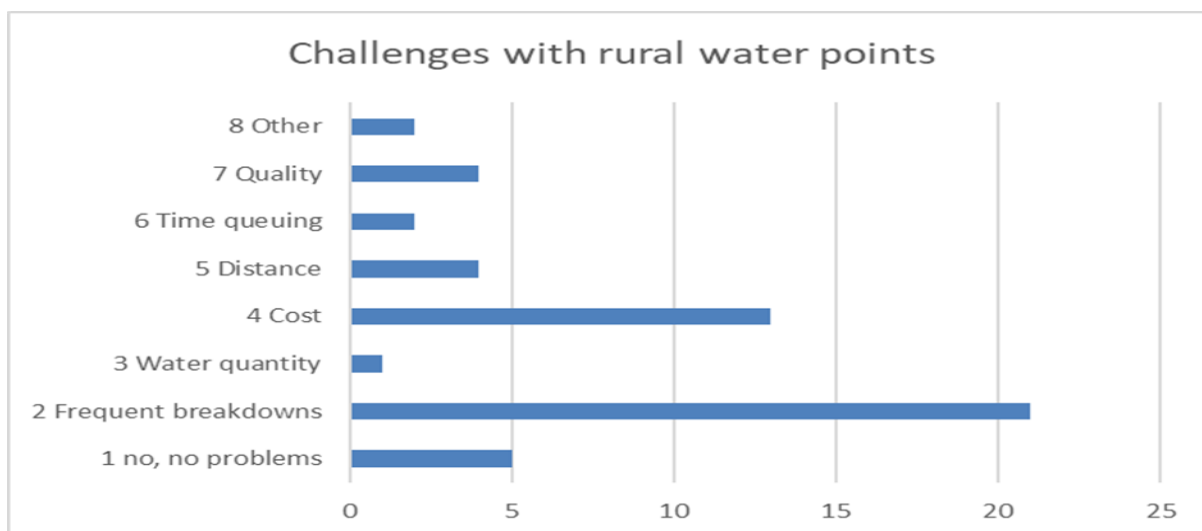
## **5.6 Operation and maintenance of the water point**

To the question asking who was doing maintenance and minor repairs of the water points, the majority (27) of the respondents indicated that minor repairs were done by the WPC on behalf of the communities, while seven respondents replied that it was the government. The same trend was indicated by the official respondents: four officials

indicated that it was the community themselves; two responded that it was the work of the WPC and four felt that it was the government's responsibility. Beyene finds that the responsibilities of the water point committee members in Ethiopia include collecting monthly water fees, managing the water services, operating and maintenance of the water service and providing education during meetings (Beyene 2012:31).

The majority of the respondents, both committee members and officials, replied that it was a government responsibility to do the major repairs of the water points. However, some water points were found leaking, and some were closed permanently due to minor works that had not been done.

There is no water supply system without a problem. To the question regarding the problems experienced with water points, five (5) respondents indicated that no problems had been experienced at their water points since installation.



**Figure 5-10: Challenges with rural water points**

However, 21 of the respondents indicated frequent breakdowns; one spoke of low water quantity, 13 complained of high cost; and four responded that communities have difficulties in making contributions and travel long distances to reach the water point, while according to two others the time spent at the water point is too much due to long queuing. Two respondents also reported that the quality of the water was not good (too saline). In order to achieve this, community users need to be satisfied with the service provided (Whaley & Cleaver 2017:59). This relates in particular to water quality and quantity and the accessibility and reliability of the supply.

The official responses to the question showed that three indicated that no problems had been experienced with water points, three officers mentioned frequent breakdowns, two mentioned the cost, and one mentioned the distance.

The reason for the non-functionality of some water points was indicated as lack of contributions from the community members because of their belief that fetching water should be free from payment, or sometimes because of lack of awareness.

The main challenges with community management of water points as encountered by the LWA, WPC and officials were as follows: vandalism (destroying the water tanks, pipes and locks), private water, broken taps, high debt, non-payment, volunteerism, unwillingness to pay and lack of knowledge. Poor attendance at community meetings, insults from community members, overlapping of the roles and responsibilities of the LWA and WPC (this could result in conflict among the members) and failure to elect new members and resignation of members were also listed.



It was observed that some water points keep working for a long time, while others stop working quite quickly. The following question was posed to find out about the management approaches applied in the Ohangwena region: Do you feel that there is a problem with the management of water points in your region and, if so, why?

With regard to the first question, respondents gave their opinions on what they saw as the success factors with those water points that work for a long time after installation and failure factors with those that stop functioning soon after installation.

R001 agreed with the fact many water points are broken or are not functional in their water scheme. Some water points stopped working because committee members were volunteers, because of huge debts (community owing NamWater) and some were closed due to vandalism by the community. It is only through effective communication and community engagement that such issues could be resolved.

R001/11/12 indicated that another reason was that many people established their own private pipeline from the main water supply. They hence lost interest and stopped supporting the community water points. These are some of the causes of water points, not being operational or functional.

R002 said:

*There is one important reason why some points are not working/functional: the taps are broken.*

There was an arrangement that the community would contribute or save money for minor repairs, but there is no cooperation among the community members. That is the reason some water points have stopped working. The income generated through water supply and sanitation services should be used to maintain and improve the coverage of WSS services and should not be used to cover the cost of other services, except where an exemption is approved by the relevant minister (Republic of Namibia 2008a).

In the past, the community used to save money because the water points were the only source of water; now people have the choice to establish their own water.

R001 said:

*Currently, only a few people left [are] still making use of the water points, which made it difficult to settle the debt left by those who established their private water. Due to huge debts accrued with time, they could not settle the debts. The problem is poverty, inability to pay.*

R003 added:

*Another reason for the closures of some points is vandalism by children; they broke the taps and [they] were never repaired. Buying parts become expensive for fixing, and the support becomes limited from the government.*

R004 and R005 responded that some water points stopped working because of vandalism by the community. “*They damaged the water meters*”. Like other respondents to the same question, R005 and R011 indicated that, at present, many people have private water compared to those who do not, and the demand for individual meter readers was high.

R008 and R010 responded that the main reason for the closure of many water points was that people were not paying. There is a need to meet with community members and help them understand the importance of paying for water. This can only be achieved by someone from outside the community.

R009 shared the same sentiment with R008: officials should come and talk to the community. They command respect in the community.

R009 claimed:

*The main reason which kept our water point working is that people [used] to pay. The debt was not high. Now it is open throughout. We expect it to be closed anytime because the debts have accumulated. If it [closes], the challenge will be felt by those who do not have their own water. It will be difficult to fetch water from someone's private water. It is not free like collecting water at the water points. We will be limited, in terms of how many litres to have; if you have an event at home, it will be worse.*

R011 indicated that the reason why many water points stopped working was due to the use of water; people at the water points were paying less than they used to pay. There was a flat rate payment per household, irrespective of the number of people or quantity of water used. As a result, they ended up using more water than they paid for, the debt increased, and the water point was closed. Poor people are not able to pay and keep pace with demands for repairs, hence the need for a government subsidy (Sasman 2010).

R012 and R013 shared the same sentiments; the reason many water points stopped working immediately after installation was due to people's unwillingness to pay. The community saw it as belonging to the government; it was not theirs.

R014 felt that some water points stopped working because now many people had private water in their houses. As a result, they abandoned the water points; no one was taking care of them with everyone having private water in his or her house. Another reason was that the community vandalised the water points; they cut the water tanks or the pipes. Some water points were not working because people were not willing to pay; instead, they used wells (*omifima*) and lakes, claiming that they were poor, and did not have money to pay for water. One official recommended that there is a need to introduce coaching to help people understand the roles of government and committee members and the part of the directorate.

According to R015, the directorate had noticed that some water points were disconnected too soon after connection while others were operating for long periods of time. The respondent confessed that there was a problem with some water points. Many points were closed down soon after connection, and there were many reasons for this. Communities differ from one another, and some people feel water is not supposed to be paid for because it belongs to the government and some WPCs thought that the government had to pay them an allowance or salary as they were managing the WP and collecting the funds for water payment. As the WPCs were doing this job on a voluntary basis and were being insulted by the community members who demanded water for free, there was nothing to motivate them to stick to the job and they just ended up surrendering

the job. This meant that the WP was left without management, which led to disconnection of that particular WP, especially when the village headman did not see the water point as important to the village.

These answers indicated that the respondents were aware that many water points stopped working soon after installation. It can be concluded from the responses that many water points are currently working, with reasons for non-functionality of few water points attributed to vandalism, non-payment, volunteerism, establishment of private water, lack of training, lack of community understanding and cooperation, poor management and the resignation of committee members.

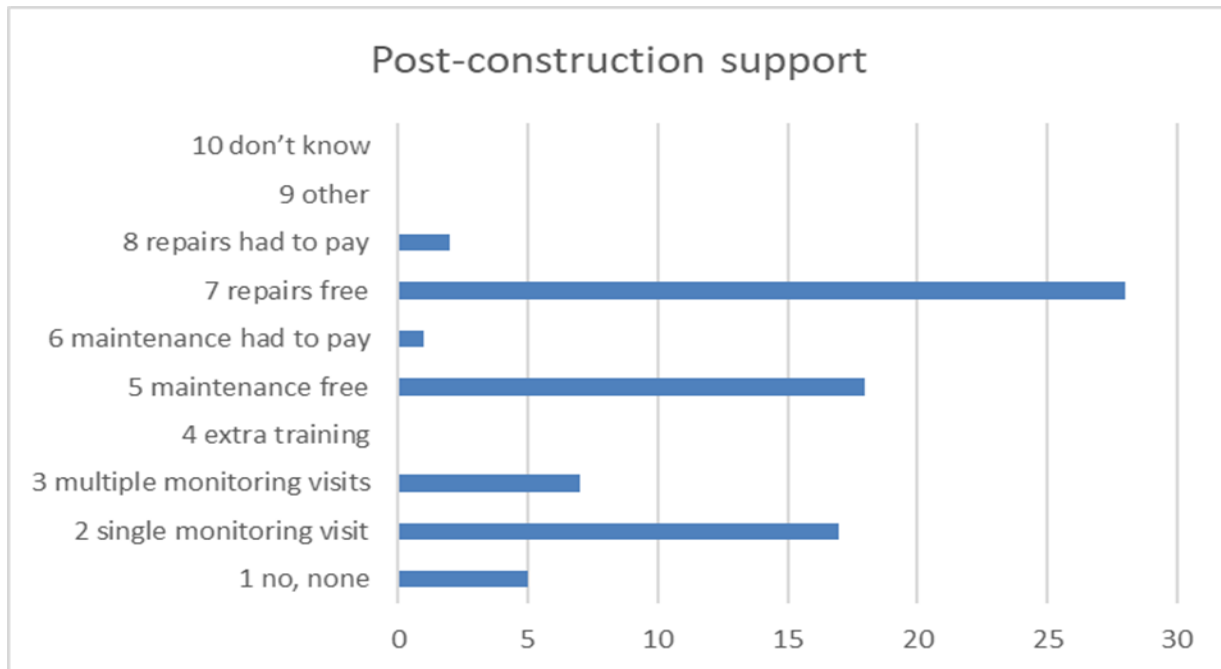
For those water points that were working, the success factors were listed as the use of card systems and cooperation among members and management.

## **5.7 Coordination and support mechanisms**

With regard to coordination and support mechanisms, the following interview questions were posed: How is this organised in Ohangwena region/water point and why? How effective is the current approach? What do you think could be done to improve it? Who needs to do what differently? What are the barriers? What would it cost?

To the question on what types of post-support were received by the installer of the water point. The members mentioned their dissatisfaction with the support provided by the government. When they reported a major breakdown of the system, they sometimes did not receive assistance on time. The result was that community members lost trust in the

committee members due to a lack of response on the part of the government. The institutional support of the water supply systems after construction is critical for the sustainability of the water points (Beyene 2012:39).



**Figure 5-11: Post-construction support**

According to figure 5-11, five (5) of the respondents indicated that no support was provided after the installation of their water points; 17 reported a single monitoring visit; seven mentioned multiple monitoring visits, 18 indicated that the water points maintenance was free, according to one, maintenance had to be paid for, 28 had free repair, and according to a further two repairs had to be paid for.

Two officials indicated that no support was provided; two reported a single monitoring visit, one multiple monitoring visits, one mentioned free repairs and one did not know or could not remember.

Both the WPC and LWA respondents indicated that the coordination and support mechanism for the committee members and general management of the community water points were inadequate and insufficient. The respondents mentioned that support had been good at the beginning of the establishment of the community water points. R008 said:

*At the beginning, we used to receive support from the office; they come to train us, monitoring and to advise us. It was all good. There [were] regular visits/monitoring by the officials and everything was going well. People were attending meetings, damaged water tanks or any repairs at the water points were attended [to] immediately the report was received at the office.*

R001 added:

*There were yearly meetings with the community, monitoring, but now I do not know if it is happening.*

The current approach was described to be ineffective, with R003 saying, “*We do not see officials visiting us.*” Regular visiting and monitoring by the official was emphasised by the respondents as the most critical thing. The directorate should pay regular visits to the WP to monitor the progress and motivate and inspire those who are doing well to do even more. In that way, the community would take ownership of their water point. At the same

time, NamWater needed to look at the voluntary issue and to motivate these WPCs, if even with a small amount of money twice a year. The proceedings of the 7th RWSN forum “Water for all” (2017) recommend that the government should provide full oversight to water committees as well as an effective platform for community interaction. Regular visits of water committees by the government officials would give the needed motivation to grassroots structures.

The government needs to repair the points that are not working.

R009 said:

*Our water tank [used] to store water and help us in case the water is not running. The way the water tank was built was poor, and it made [it] fall and break. Those who are unable to pay need government support. We cannot help them always. The community water point is vital; we cannot survive without them.*

Furthermore, the study by Whaley and Cleaver (2017:60) states that it is crucial that external support is available throughout the post-construction phase for the water point to perform as intended. It is believed that voluntary community management arrangements do not adequately ensure the continued enthusiasm and involvement of committee members, hence the growing reinforcement of external support. As a result, Baumann (2006:11) proposes that the roles and responsibilities of central and local government as well as the community in delivering the service must be made clear.



In addition, the Water Aids (2011) proposed five main areas of external support to WPC management in addressing mismanagement of revenues. These include external technical support, which is required when technical problems arise that exceed the WPCs' ability to cope and recurrent cost-sharing, which might be needed if communities cannot raise the necessary revenues. They also argue for the need for support to supply chains and service providers, which is crucial if communities are to access the spare parts needed for operation and maintenance as well as support related to externalities, such as rapidly increasing population growth, climate change and other large-scale shocks.

This idea of external support is echoed by Harvey and Reed (2007) as well as Lockwood and Smits (2011) who state that effective support improves the administration, operation and maintenance which guarantees the sustainability of water services.

The coordination was not clear from the beginning. The community was promised that their use of water would be free at the start and they would start paying for the water utility only after ten years. However, NamWater billed the community from year one when the water point was installed. The community felt that the coordination between the two institutions (Rural Water Supply and NamWater) was not explicit and felt betrayed. As a result of that action, many water points were disconnected due to the enormous debt incurred over ten years. Although community ownership and management of facilities should be adopted as the strategy of choice for the WSS sector in general, more support from the government is highly necessary for the effective implementation, operation and maintenance of the water points (Whaley & Cleaver 2017:58). The community has to decide on internal priorities and the division of responsibilities. According to the Republic

of Namibia (2008b), the transfer of these functions will have to take place over a transitional period to allow for training of those involved before the transfer of responsibilities to rural consumer representatives. In order to do this, community sensitisation, participation and training appear important determinants of the future operation and management of the system. Table 5.1, below, indicates how the government of Namibia plans to support the community in managing its receipts and gradually phase out the subsidy given to the rural communities. However, the plan was not realised.

Date	Government payment to NamWater	Community payment of NamWater invoice
Before 1st Aug 1999	100%	0%
1st Aug 1999–31st Jul 2000	80%	20%
1st Aug 2000–31st Jul 2001	60%	40%
1st Aug 2001–31st Jul 2002	40%	60%
1st Aug 2002–31st Jul 2003	20%	80%
1st Aug 2003 -	0%	100%

**Table 5-2: Phasing out of Government subsidy support**

Source: Republic of Namibia (2006:6)

R003 commented:

*The main problem is when the pipe burst, it used to increase the cost, the longer it stays without repair, the more money we will pay for the water we did not use.*

*The officials take long to install the meter readers; they are procured from South Africa.*

It is critical during the design phase to consider locally made materials. Whaley and Cleaver (2017:62) warns that inappropriate design or poor quality installation drastically undermines the future operation and maintenance capacity of the community governance arrangement.

The officials indicated that visits and monitoring became limited due to lack of transport at the office. They informed the members that they would not be able to bring material for the repair of the water points.

Backing the argument, one official R013 explained:

*The idea to visit the community is important. When comparing the past with the present, you can see a big difference, the government resources [are] now limited, everything is limited. You want to work, but you do not have the resource to enable you to do the work. It could be a contributing factor to the closure of some water points.*

It is documented in the literature that, after installation of water points, many receive relatively less attention from donors, government and development agencies (Whaley & Cleaver 2018:59). According to Sasman (2010:2), the disturbing truth is that installed rural

water supply infrastructure is far harder to keep operational than hoped for and often fails before its planned design lifetime due to poor maintenance. According to Leclert et al (2015:40), many groups struggle to remain active and to operate and maintain their water system in a sustainable way. Leclert et al (2015) go on to say that the supply of infrastructure ends up needing repeated rehabilitation, which is a massive financial undertaking. Although succeeding in one community in Kenya, a study by Leclert et al (2015:40) find that one-third of the newly established community-managed water systems stop functioning within the first three years after completion.

The government support services should be seen as a medium for self-sufficiency and not be extended free of charge. In order to adhere to the cost recovery principle, rising block tariffs, rebates and cross-subsidisation within the sector may be implemented (Republic of Namibia 2008b). In accordance with the National Water Policy, clear costing and fees and credit control policies are required to achieve cost recovery without sacrificing equitable access to the poor and marginalised. Furthermore, the Republic of Namibia (2008a) states that the basic premise of cost recovery is that water is an economic good with a social responsibility to make water available to the poor. It is accepted that the overall sustainability of the water supply services depends on its ability to become self-sufficient. However, full cost recovery and prevention of debt as part of the principle of water as an economic good should be promoted and implemented, based on equitable tariffs to improve access by poor and marginalised communities. There is a need to comply with the consolidated national tariff policy for water supply and sanitation provision, including appropriate credit control measures if the system is to work effectively. At the moment, there is no mechanism to enforce compliance.

The body responsible for regulating water use and pricing (section 12 of the Water Resource Management Act 11 of 2013) is expected to harmonise the expectations of the consumers and policy-makers without compromising the financial sustainability of the service providers (Remmert 2016). Mechanisms for transparent subsidies and/or cross-subsidisation by means of rebates for those who are unable to pay for WSS services should be created (Sasman 2010). It is crucial that the consumer should know the amount of the subsidy, why the consumer is subsidised, and by whom.

## **5.8 Conclusion**

This chapter presented the results and analysis of data. Although critical for the effective management of the rural water supply, the institutional support of the water supply systems after construction was found to be very weak. Though the majority of committee members received training, the level of overall training was very low and weak. It was found that more training is needed to increase the capacity of these water committee members to operate and maintain their water points effectively.

Amongst the research findings, the following information was analysed: critical factors for water governance, problems experienced with community management of water points, financial and management arrangements of the water points in the study area and the coordination and support provided by the government.

## **CHAPTER 6: INTERPRETATIONS AND DISCUSSION OF THE FINDINGS**

### **6.1 Introduction**

This chapter presents the interpretation and discussion of the research findings. The aim of the analysis, interpretation and discussion of the results is to provide possible answers to the research questions, namely:

- How effective and efficient is the Ohangwena region in the provision of water supplies in rural areas?
- Is the Ohangwena region approach one that other regions could adopt?
- What are the risks in community management of rural water supply?
- What is the most effective framework for community management of rural water supply in Ohangwena region?
- What lessons can other countries embarking on similar programmes learn from the Ohangwena experience?

The researcher, therefore, set out to do the following to attempt to realise the research objectives;

- to determine the effectiveness and efficiency of the provision of water supplies in rural areas of the Ohangwena region

- to determine whether the approach of managing rural water supplies in Ohangwena could be adopted elsewhere
- to describe the risks associated with community management of rural water supply
- to determine the most effective framework for community management of rural water supply in Ohangwena region
- based on the results of this study, to make information available to other countries embarking on similar programmes to learn from the Ohangwena region experience, thereby making a contribution to the existing scholarship on community management of rural water supply as presented and discussed in the previous chapters

## **6.2 The CSF for community management of the rural water supply**

Several themes emerged from the qualitative data. The discussion in this chapter is based on the critical ones. The critical success factors identified were discussed under the following themes: community involvement on water point initiation and installation, water point type and technology, management of the rural water supply, training of the committee members, operation and maintenance, coordination and support mechanisms.

### **6.2.1 Community Involvement in water initiation and installation**

The first theme has to do with community involvement in water initiation and installation. There was minimal involvement of community members in the initiation and installation

of the community water points in the study area. For the water point to be sustainable, it is imperative that the community of users are involved right from the initiation of the rural water supply project (Beyene 2012:25; Moser 1989). That means that communities should take the final decisions on important aspects of the planning and implementation of water supply schemes for sustainable rural water supply systems (Etgar 2008). Amer (2004) states that the selection of the site and technology are the main aspects of participation during the initial phase of the water project. This however does not appear to be the case according to this study. It has been suggested that appropriate technology is fundamental to making the water supply system sustainable (Beyene 2012:35). This study found that the participation of the community members was mere tokenism and not an engagement aimed to incorporate the community views. The sources consulted indicate that the participation or involvement of the users from the beginning by voicing their opinions on where the water point should be constructed and the most convenient site that should be chosen where it is possible to keep an eye on it all times is of cardinal importance. Again, Phiri (2017) in Malawi found solar-powered engines to be more manageable and sustainable for rural water provision. It is critical that communities are given the voice to determine which water type and service levels are acceptable to them. There is no need for monthly community contributions with boreholes and solar-powered engines, making them the best options for low-income communities.

There was some reluctance from the community members to contribute to the operation and maintenance of the water points. Several studies (Fielmua 2011; RWNS 2017) have shown that users in different parts of the world show reluctance to assume responsibility for water points when they have not been involved in selecting the site. Hence, the direct



involvement of users in the initial negotiations leads to ownership and willingness to make contributions when needed. These factors motivate the communities and their participation demonstrates that they are interested in participating in activities in which they feel they are benefiting.

The results of this study indicate that local perspectives and interests were not considered in most areas during the selection of sites; hence some boreholes were drilled in saline water areas. There is a growing body of literature that recognises the importance of indigenous knowledge. Schrader (1996) emphasises that development policy and planning should consider local expertise and the interest of the people for whom it will be erected. According to Miruka (2016), local knowledge in the implementation of water projects is crucial, as this would make the projects more sustainable in the long run. In addition, Christens et al (2015) emphasise that the knowledge and opinions of rural inhabitants are critical for inclusion in the planning and management of development projects and programmes. For any development to be self-sustaining, it is of importance that the members of the target group participate in the initial design of the project (Schrader 1996; Moser 1989).

The study established that there was a top-down planning of the rural water supply in the study area. About thirteen (13) committee members responded to the question of who initiated the development and whether they were involved in the installation of their water points. They indicated that the government initiated and installed the water points. This was further verified by seven officials, who indicated that the initiation and installation of the water points are the responsibility of the government. Salim (2002) showed that this

system was not sustainable. It called for the need to involve communities identified as one of the critical strategies of the International Drinking Water and Sanitation Decade (IDWSD) which spanned the 1981 to 1990 period (McCommon et al 1990). These findings raise important theoretical issues that have a bearing on the co-production of services, which emphasise that the state needs the community as much as the community needs the state in order to function properly and fulfil public service (Joshi & Moore 2004).

That means the community was not afforded much responsibility, authority and control over the management and development of their water points (Fielmua 2011). However, it could have led to more effective and efficient management if beneficiaries had the authority and fully participated in the process of developing their water points.

The limited involvement of the community and users in the installation of the water points resulted in many water points breaking down without repairs soon after construction. Some spare parts were not available in the local market and, most of the time, they were ordered from South Africa. Fielmua (2011) alluded to the fact that in many cases spare parts are scarce and become challenging to obtain if communities were not consulted in the selection of water type technology at the initiation of the project. The community and government need one another for effective service delivery to end-users. Hence, the participation and collaboration between the government and beneficiaries is critical in the management of water. The study conducted by Joshi and Moore (2004) recommends that representatives of service users should have discretion in the final distribution of water and have some influence on the local-level policies and operations of the service maintenance and planning. From this study, in general, it was found to lead to difficulty in

providing water when there is no proper collaboration and coordination amongst the actors.

The most important findings in which the community were fully involved was on the contribution of land and labour. Through the headman, the land was made available where the water point was erected. At the same time, community members were employed in digging the trenches to lay water pipes. In contrast, at some places government, instead, identified the site, contracted the company to do the digging, and installed the water point. Those who digged trenches were given food (food for work programme) as incentives. There are several possible explanations for this result. It is difficult though to determine whether the community participated due to the food that was given or whether they were driven by the fact that they were digging trenches for their own water sources. It is encouraging to compare this finding with that made by Kwashie (2007) and Chowns (2015a) who find that community participation in managing the water supply systems by themselves is one of the indicators for sustainable community management in rural water supply schemes. However, this study has been unable to explain why the authority excluded the community in other areas such as technology selection that required their participation.

Despite the beneficiary contribution to land and labour, it became evident during the discussion that other decisions were pre-determined by the government; the role of the community role was only to endorse those decisions. Hence, the resources and type of technology were not locally determined or tailor-made solutions. As a result, some water points could not operate for a long time due to the scarcity of spare parts in the local

market, while other water points were closed by the authority (government) because they were highly indebted caused by excessive leakage which could not be repaired.

The community involvement in the initiation and installation of the rural water supply points as practiced in the study area took the form of a one-time package engagement (Breslin 2003) which involved labour and mostly land among other forms of contribution. Thus the functionality of the water point is often deemed to be dependent on the type of water points and functionality of the water point committee. It has been suggested that continuous engagement with the beneficiary is the best practice for water sustainability; it stimulates the interest of the recipients to participate in activities when they feel that they benefit and are informed about how their money is used (Amer 2004).

#### **6.2.1.1 Management of the rural water supply**

In general, the respondents were clear about their roles and responsibilities with regard to the management of water points and rural water supply schemes in the region. The findings from the officials and committees are in line with those stated in the Republic of Namibia (1992:15-16) that the Water Point Committee is responsible for the maintenance and operation of the water points. In order to achieve all these, they have to hold regular meetings, collect information, work together to build the water point, make rules, work with the community, keep records, take care of money, work with the government and other organisations and water point committees and monitor and evaluate their activities. However, the study discovered a mismatch from what the committee members are responsible for versus what they were trained to do and what they were actually doing.

There were some deviations in terms of their roles and responsibilities. The training was mainly limited to the relationship between water and health, the tasks of the water committee, and the functions of the caretaker, community and water committee. The issues on financial management, leadership, human relations and conflict resolution and how to govern a water point or scheme are some of the critical topics missing in the training manual.

Although they were clear on their roles, the practices were different from point to point. These results are in agreement with Asibey, Braimah and Amponsah (2016) findings in the Sekyere East District of Ghana, which showed that approximately 57% of the community-based managers who have irregular (unscheduled) meetings had at least 55% of their water facilities not functioning. In Namibia R001 indicated that “after three years we did not meet”. This confirmed the fact that regular meetings are critical for the effective management of water points.

The result of this study was in line with Remmert's study (2016) that finds that Namibia has been credited for reforming and developing progressive policies in line with the constitution and in conforming to international best practices and expanding water access, more especially in rural areas, since independence. However, full implementation remains a challenge with which the country is still grappling.

The study establishes that there are overlapping and duplication of roles and responsibilities of both the Water Point Committees and Local Water User Association as

well as with the officials. Furthermore, the Republic of Namibia (2017:19) states that the officials, amongst other responsibilities, are to:

- construct new water points
- inspect, survey and evaluate a water point for rehabilitation
- test the water quality and determine the safe yield of a borehole
- facilitate the establishment of Local Water User Associations, including a WPC
- hand over water points or schemes for lease to a water association after a technical take-over inspection has been carried out
- respond to excessive pipe leakages on pipeline schemes
- train water committees and caretakers after the water association is established
- attend to water-related conflicts arising from the use and management of rural water supply
- engage in capacity development of water management committees within the fields of management, extension and technical skills relating to rural water supply services delivery at least once a month per water point

Despite these well-crafted roles and responsibilities, the findings showed a different picture with regard to the execution of these responsibilities. The officials complained about the lack of resources such as transport and money that hampered them in carrying out their work. There were no quality checks of water points and excessive leakage was

observed at some water points. The lack of prompt advice, responses and support to communities were cited as actually being the main challenges from the government.

In general, in terms of management structures for rural water supply, there is a lot that countries can learn from Namibia. Namibia adopted a community-based management approach. There is more to learn from some communities who are doing well with regard to managing their water points, although the majority have challenges because communities are reluctant to contribute towards the daily operations and maintenance of their water points.

An interesting finding in this study was the card system which was introduced at one water point. This community initiative resulted in a well-functioning water point, with no debts and repairs attended to promptly. However, the majority of the respondents felt that the government should incentivise them or subsidise the water and take over the responsibility of managing water points.

Institutional reform in the water sector was introduced in Namibia to address a number of issues, amongst others to increase water service provision, reduce duplication and improve coordination between different ministries, communities and committees (Republic of Namibia 2008b). Hence, a new water policy is necessary to improve water management to meet the needs of the communities. Overlapping or duplication of the roles and responsibilities of both LWA and WPC were observed in this policy document. This could lead to conflict between the LWA and the WPC if not resolved and made clear in the future.

Similar to what is stated in the Republic of Namibia (2004:sec 18(1)), the roles of the Local Water User Association encompass coordinating the water management of the region and solving problems which cannot be solved at the local level. furthermore, the Water Point Committees have the right and duty to operate and maintain their water points; this was decided in order to foster a sense of ownership. They have to decide about water use regulations and permit or forbid access to water according to established rules. They are given the power to adopt measures to prevent the wastage of water and to protect water infrastructure against vandalism and other damage (Republic of Namibia 2004: sec 18, 19). In practice, these committees have no legal power to enforce the rules and regulations if there is any problem or dispute or discrepancy. In fact, during the discussions with the committee members, it emerged that many of the committees do not have rules governing their water points, hence community members were doing whatever they wanted to do without consequences. The main challenge is that the Water Resource Management Act 11 of 2013 has not yet commenced.

Furthermore, the Local Water User Associations are supposed to elect water point committees in order to run the day-to-day management and financial activities of the water point (Republic of Namibia 2004:sec 16 (1), (2)). However, this provision contradicts the best practices of community participation because it implies that the LWA elects the WPC on behalf of the communities themselves. The management at many water points become dysfunctional.



The study established that there are some critical omissions in the community management model adopted for rural water management in Namibia. The problems found in this study are not dissimilar to problems obtained in other similar studies regarding community management of rural water supply in different parts of the world. Lockwood and Le Gouais (2015) find that the community management model has brought many benefits but has mostly failed to achieve the ultimate goal of reliable and sustainable water supply at scale in most countries around the world. Amongst other omissions in the model is the inclusion of traditional leaders in the management structures of the rural water points. Although there is a mention of including the traditional leaders as well as church leaders in the policy, in practice, these two key stakeholders were excluded in the management structures of the water points. Bock et al (2009) and Matengu (2013) find that communities have little trust in the water committee in comparison to trust in traditional leaders. In the study areas, communities are found to have more faith in traditional leaders.

This study found that there is a lack of community involvement and lack of capacity amongst the committee members to effectively manage the water points. The findings from this study agree with conclusions from Dyer (2006), Beyene (2012) and Paul (1987) that communities should be involved in the management of water rather than being treated only as consumers. When users perceive a lack of inclusion and influence, trust in public service delivery and government may decrease. However, the conflicting roles of the committees reported in this study led to the breakdown of many water points. A similar study by Chowns (2015a) in Malawi reaches the same conclusion that maintenance is rarely done and long delays in organising repairs are often experienced

when the roles of the members are not clear. In Namibia, major repairs are the responsibility of the government, however, communities still are struggling to do minor repairs, which led to some water points being closed permanently.

The lack of supervision and coordination of both structures of major and minor repairs by the committee members and officials hampered the effectiveness of community management in the region. This type of situation was also identified by Olken (2005) in Indonesia, where it contributed to technical failures and less effective community management. The result of lack of supervision and coordination was that government abandoned or no longer provided certain services very effectively (Schouten & Moriarty 2003; Leclert et al 2015).

The same challenge of lack of resources identified in the study by Joshi and Moore (2004) was found in this study. It was difficult for the government and committees to effectively provide water to the communities due to lack of resources. Resources mentioned by the respondents referred to personnel, equipment, money and transport to attend to clients' needs when support was needed.

#### **6.2.1.1.1 Managing the cost recovery**

The cost of water usage is very high, and the majority of the poor cannot afford it. The government made it very clear in the Water and Sanitation policy that essential water supplies should be available to all citizens and should be accessible at a cost which is affordable for the country as a whole (WASP 2018). The beneficiaries were asked to

make a contribution to the cost of the services as increasing rates for standards of living exceeded the levels required for providing basic needs (WASP 2018). The word “affordable” is relative: the cost of water was found to be different at various water points. A study by Bock et al (2009) also finds that the recovery of operation and maintenance costs from water users provoke controversial discussion. Similar concerns were raised that the recovery of costs is putting a heavy burden on water users. Some users felt that cost recovery was phased in too rapidly with inadequate training.

According to Breslin (2003), beneficiary willingness to contribute to cost is important to community participation because beneficiaries act as an indicator of a community’s commitment to the project. In the Ohangwena case, it is at the discretion of the water committee to decide on the cost, hence the variation in the cost of water from point to point. The issue of cost recovery is a challenge in different parts of the world, where the community is in charge of water management. In South Africa, Van Schalkwyk (2001) conducted a study on the effectiveness of water provision in rural areas and also finds that cost recovery was a major challenge facing water schemes managed by communities.

This study also found non-uniformity in dealing with high debt of water points. Some points were closed while some were still functional, and users were not paying. People who were unwilling to make a contribution to the cost of water were referred to as “uncompliant citizens” in the study by Annala and Suominen (2016). To make this system effective, an approach of institutional co-production had to be contextualised and adapted like in Ethiopia.

#### **6.2.1.1.2 Election of the water committees**

It was indicated in this study that the Water Point Committee members were elected by community members. This is a contradiction to the policy provision that LWAs appoint the WPCs (Republic of Namibia 2004:16). However, this study found this to be the best practice as it is a good indication of exercising citizenship at the local level because it promotes transparency and accountability. Another interesting finding in this study is that no election of new members has been held for the past twenty years (1997–2017) since they were elected to serve on the water committees. It was established that water committees in the study area were elected until they resign or die. There were no regular or periodic elections. It became evident from the discussion that many of the members are tired and need replacement. This is not a good governance practice for effective management of water because committee members relax and many lose interest in serving as members.

Mugumya (2013) emphasises that the election of new members after every three to five years is crucial to keep them vibrant. Hence, the periodical election of WPCs should be encouraged in order to reduce the monotony of voluntary work that some members may suffer, thus affecting their levels of motivation. Lockwood and Le Gouais (2015) cautioned against this kind of management arrangement that lacks continuity when trained volunteers leave the area or no longer have time or willingness to undertake management on a voluntary basis.

#### 6.2.1.1.3 Professionalising of water committees

The study revealed that many water points were left without committees due to the collapse of the Water Point Committees. It was further revealed that members of the collapsed committees complained of a lack of motivation or incentive to carry out their duties. In contrast, some members accepted the fact it was a social responsibility to manage these facilities. The majority, however, had other responsibilities and assignments to attend to which they deemed more beneficial. This finding is in congruence with Asibey, Braimah and Amponsah (2016:415) who identified members' unwillingness to invest their time in the works of the committees, partly because there was no incentive for them to participate in the committees' work.

With regards to the incentives for the committee members, it was emphasised during the discussion with the respondents in this study that the government should consider remunerating the committee members. Lack of incentives for the committee members was mentioned many times during the discussion as a critical factor affecting the management of many water points in the study area. They spend their own money on making calls and transport to attend meetings as well as going to deposit money at the banks or the office. This has resulted in committee members resigning: R010 "*the government should do its work; we do not want to volunteer anymore.*" They felt that remunerating them as they were promised at the beginning as the government considered paying them would encourage them to continue serving as committee members. This is a possible threat to the future management of rural water points. In 2016, many committee members went on strike demanding remuneration, but the

government turned down their demand (Bosworth et al 2018). This has resulted in many members resigning and leaving some water points with no or few members to manage them.

Thus volunteerism as the basis of service delivery for rural water supply should be revisited and treated as a matter of urgency as it is clearly a stumbling block in the success of rural water provision. The RWSN's (2017) study in Abidjan found that incentivising the water committees can lead to the sustainable management of the water point. It proposed that committee members be paid, not a wage but in cash or in-kind, which is basically meant to motivate the members.

There is a need for the professionalising of community management and support to committee members. A study by Lockwood and Gouais (2015) recommends that professionalisation of community management will alleviate challenges experienced at the moment. That means that there is a need for moving away from the voluntary provision of water services towards a philosophy of service provision and working to agreed standards with greater transparency, accountability and efficiency. The limitation with the current management model of water supply in the study area is that the water committees are expected to manage the operation and maintenance of the water points, but the majority of them lack skills and accountability and there is no legal recognition of what they do or decide.

In summary, the problems identified with regards to the management of rural water supply from this study are multiple and could be concluded to have a major impact on the failure

or closure of some water points in the study area. Amongst the problems identified are lack of community cohesion, lack of management skills, lack of technical and human relations among the water committee, inability or unwillingness to pay by some water users, lost capacity due to migration (especially young people), weak demand caused by alternatives (people reverting to traditional water sources when the water points closed or were not functional) and lack of standards or rules regulating the conduct of community members.

### **6.2.2 Financial arrangements**

This study found the financial management of the water points in the study area to be weak. In general, there was no strategy to reinforce cost recovery of water. Many water points were highly indebted, forcing NamWater to close some water points permanently until they had settled their debts. With the exception of one well-managed water point, there is no bookkeeping and auditing taking place to determine the use of money contributed by the users. Daemane (2015) points out that a training course in simple bookkeeping and financial management is critical for successfully implementing community-based water supplies. Although the majority have water facility bank accounts opened for their water points, in many cases, it was only the treasurer and chairperson who knew how much was in the account, making it vulnerable to abuse. In support of the above statement, an official indicated that in the past, some money went missing in the hands of the committee members. At one of our water points, there was one person who was the secretary, treasurer and chairperson. The committee members endured insults from the community:

R004 said:

*[T]hey started insulting us that we are misusing the money when they see me doing something; they will say I am using their money.*

As a result, there was a lack of trust of the committee members in the community.

Transparency and accountability are the key ingredients to the success of community management. This study found that there is a lack of transparency and accountability amongst the committee members. There were no reports on the use of money contributed by the users, and no reports on the management of the water points in general to the users have been recorded. Hence, communities stopped making contributions and there was alleged misappropriation of money by the members.

The fees adopted at some water points were not enough to pay for the water consumed. As a result, the debt increased to a level that members and community could not afford; hence, a need to regulate water pricing. The study established that some money collected from the community members for water fees and administration activities were misappropriated. If enough administrative support was provided, a situation encountered at some water points could be avoided. Administrative support may include help in tariff setting and auditing of accounts (Verhoeven & Smits 2011:2).

The study also discovered that there is no standard rate. Each community collected different water rates and had different ways of maintaining their water points. As a result, the amount collected sometimes was not enough to cover maintenance and repairs of broken-down facilities due to the high cost of facility parts and repairs and the low revenue



obtained from households. Each water point had its own rules, and no penalty was imposed on those who broke the rules. Although committees were established for daily management of the water points, it was found that no meetings with the community were conducted.

One of the main functions of the committee members was to collect fees from the users after presenting them with the amount they had to pay for the water consumed according to the meter reading. The study established that there is difficulty in obtaining payment from the users leading to inability to recover costs of water consumed by the users. At the same time, committees do not have the necessary capacity to manage and maintain the water points. It is therefore critical to develop systems of cost recovery to ensure the maintenance and functioning of the water points. An interesting finding from this study is the card system introduced by one water point. This water point did not have debt, and every user paid according to the water consumed.

However, the current water price at some water points includes water consumed, maintenance and administration, while at some points, only water consumed was costed. Montagero (2009) suggests that it would be ideal if the price set covers the monitoring rounds by the committee members as well as the payment of the tap operator. At some water points, the operator is paid from the money contributed by the users. This would make the work attractive to the caretaker, as the maintenance of the water point is currently generally weak. Furthermore, Montagero (2009) recommends that committees should set payment modalities to take into account local practices.

### **6.2.3 Training of the water point committees**

The study also identified training of committee members as critical for the proper management and sustainability of the water supply. The objective of training the water committees, amongst others is to provide the committees with sufficient knowledge to ensure the efficient functioning of the water points, with a minimum level of supervision from the officials. In Kenya, Schouten and Moriarty (2003) also found that training of committee members led to improved relations between community and committee members. In Karnataka, India, ,training included maintaining book records and other technical aspects followed by additional community campaigns on the use of water, which led to improved water management (Water and Sanitation Program 2015).

During discussions with the respondents in Namibia, it became clear that the training provided to these members was focused more on technical aspects, but the little emphasis was placed on soft skills. Lack of capacity to resolve conflicts, set rules and regulating the behaviour of community members who are vandalising the equipment and insulting the committee members clearly show that training is critical to the successful performance of these committees. The element of human relations (dealing with people) is missing in the training manual and it is vital. Schouten and Moriarty's (2003) study in Kenya found that training of committee members led to improved relations between the community and the committee. Again, Leclert et al's (2015) study in Kenya found out that the capacity gaps among community groups are partly the result of inadequate capacity building. A once-off basic training before handing over of the water point provided to most committee members in this study is not sufficient to ensure sustainable management of

the water point. Hence, continuous training is crucial to the successful performance of these committees.

In contrast, the situation was not the same for all respondents. There were instances of good community attitudes towards the water committee and the community was supportive of water committees, which led to basic maintenance being carried out by local operators voluntarily and book-keeping being in order. This happened mainly in the well-managed water points, implying the importance of continuously ensuring good relations among the community members.

#### **6.2.4 Operation and maintenance**

The majority of the respondents believed that it is the Government's responsibility to do major maintenance of the water points. A study by Beyene (2012) in Ethiopia found that the maintenance of major and minor repairs was the responsibility of the water committees. A key challenge to effective operation and maintenance of the water facilities was some households' reluctance to pay for water consumed. R008 said:

*people are not paying, that is the reason of many closures of the water points.*

Some argued that they contributed to the provision of the facility:

R009 said:

*We dug the trenches to bring water here, now paying for what?*

They therefore think that they must be allowed to fetch water without paying any amount. It was mentioned in the study that the most critical thing that other water points can emulate from those that function well is to introduce a card system: R005 said:

*We use cards at our water scheme, all water points are working, not closed, the card system can help.*

The caretaker records the individual usage of water and the number of litres of water an individual fetches.

Furthermore, the study established that the operations of the water committee were ineffective and this may be due to the voluntary nature of their jobs. Membership of the local level water point committee was mostly voluntary and without direct financial return to the members. As a result, the committee members became unwilling to invest their time and resources, partly because there was no incentive for them to participate in the committees' work. Kwashie (2007:2) and the IRC (2004) in their studies mention that in the past many of the water supply systems that were constructed broke down soon after implementation as a result of poor operation and management of maintenance.

The majority (21) of the respondents were not happy with the operation and maintenance of their water points. There were frequent breakdowns of the water points, low water quantity, high cost, long queues, saline water and travelling long distances to reach the water point. In order to satisfy users with the service provided, the above-mentioned needs improvement, particularly in terms of water quality and quantity, accessibility and reliability of the supply (Cleaver & Whaley 2017: 59).

Decentralisation of offices also emerged as a critical factor for effective management of the rural water supply in the study area.

R005 said:

*bring the offices closer to the community like at the settlement areas, official can invite the people, and people will come because of the distance*

Many studies have supported the decentralisation approach to water provision (Faguet, 1997; Reed & Kasprzyk 2009; Aiyar et al 1996). This, amongst others, enhances governance responsiveness, promotes greater participation and enhances efficiency and transparency. Respondents in this study indicated that the decentralisation of offices would increase payments for water because the distance would be reduced; even the elderly and poor people would be able to walk to the office and make the payment.

R005 said:

*They should increase the officials; decentralize the office to shorten the distance”*  
and another responded

R006 said:

*establish an office in remote areas, and people spend more money on transport than the amount they will pay for water.*

The current situation is described as bad as community members have to spend more money on transport than on the water payment. Many people refrained from paying for water as a result.

### 6.2.5 Coordination and support mechanisms

There were weak coordination and support mechanisms in the study area. It was evident from the responses that minimum follow-up support is received. One respondent R004 said:

*The support we get from the office is abysmal.*

R006 said:

*It has been a long time when we show the officials visiting us.*

As indicated by Schouten and Moriarty (2004), the community cannot do it all by themselves; they need support. The findings from this study highlight the need for cooperation among different actors in water provision. The lack of follow-up support results in committee members and users ending up operating in isolation. When there is no control of the quality of services provided or supervision to safeguard the standard, government responsibility for fulfilling the right to water is undermined.

This finding demonstrates the apparent disconnection between the government institutions and the community. Leclert et al (2016) show that disconnection goes back to the origin of community management. However, the community holds important gains in terms of community participation and empowerment, but the government is entirely left out of the picture when it comes to its implementation. There is a great need for continuous engagement between the government institution and the community for

community members to be regulated in order to ensure effective and efficient water provision.

Regular visits by the officials are critical for the operation and maintenance of many water points. Literature has shown that the majority of community-based service providers were unable to manage their water supplies without some form of external support (Lockwood 2002; Lockwood et al 2003; Schouten & Moriarty 2003; Harvey & Reed 2007).

The study found that support provided to the water committees was minimal in the study area. The officials who responded to the study explained about lack of resources

R012 said:

*We are facing challenges as well, it includes fuel and subsistence and travel allowances, overtime. These are what the government is trying to cut.*

Resources referred to are the spare parts, money, transport and capacity building of the committee members, all of which hampered the effective operation, maintenance and management of the water points in the study area. Whittington et al (2009) confirm the fact that the vast majority of community-based service providers survived due to the support they received. It was found that the government was not well resourced for undertaking monitoring in the region and providing support to the communities. Communities on their own could not be expected to achieve long-term sustainability of rural water supplies without government support. Hence, continued provision of support, training and capacity building programmes by the government is essential to developing a responsive community-led management tier (RWSN 2017).

According to Dyer (2006), financial challenges limit the ability of many people to pay for water, which results in the inability to hire suitably skilled people to repair the broken water taps, leading to lack of management and technical capacity within the water scheme or at the water point. Concerning the relative lack of financial and human resources, as was found in this study, Dyer (2006) recommended outsourcing certain technical and management functions as a rational strategy.

### **6.3 Conclusion**

This chapter specifically focused on the critical success factors found to be hindering the successful management of WPs in the Ohangwena Region based on the results of the study. The study revealed that there had been substantial gaps in the implementation of the reforms and lack of capacity in various areas (technical, financial and human relations), which hindered the effective management of rural water supply. For effective implementation of the community management model adopted for rural water supply in Namibia, significant changes in water governance, policies, values and behaviours of community members are required. Cost recovery, the role of traditional leaders and lack of incentives were identified as some of the major factors hindering the effective management of many water points. Community participation alone is not sufficient to guarantee the functionality of the water points.

In general, the study exposed some critical factors which might have contributed to the success as well as the factors that impeded progress in the studied region. Factors



considered to be critical to address the challenges experienced in managing the rural water supply in Ohangwena region are recommended in the next chapter.

## **CHAPTER 7: GENERAL CONCLUSIONS AND RECOMMENDATIONS**

### **7.1 Introduction**

This chapter summarises the key findings of the thesis and proposes a framework necessary for supporting the efficiency and effectiveness required in managing community rural water supply. The study investigated the critical success factors for the community management of rural water supply in the Oshana region, Namibia, with a particular emphasis on how these factors affect the overall effectiveness of rural water supply management. The chapter presents the conclusions and recommendations made by the study.

The study identified the critical success factors influencing community management of rural water supply and their impact by also referring to different studies on the subject from all over the world. The critical factors have been categorised in terms of factors related to leadership and water management structures (institution), community participation (initiation and installation of the water point/scheme), socioeconomic factors, finances, management, incentives of the committees, election of the committee members, training of the committee, decentralisation, coordination and support mechanisms.

### **7.2 General conclusions**

One of the objectives of the study was to determine the most effective framework for community management of the rural water supply in Namibia and whether the approach

of managing rural water supplies in Ohangwena could be adopted elsewhere. In general, the study concluded that the community management model is the most effective model for rural water supply. It is also concluded that the Namibian rural water supply governance is polycentric. If properly implemented, both the model and governance would lead to effective management, sustainability and help many people to have access to safe drinking water.

Based on the research findings, the following conclusions can be made:

1. The study established that a management structure and a legal framework existed and clearly defined roles and responsibilities of different stakeholders were all in place as guidelines but legally not yet operational. The major challenge was the weak display of leadership authority by the WPCs and hence the need for the continued support from the government.
2. The delineation of roles is not clear due to legal uncertainty and as such, there was an overlap of roles which could lead to conflict between the actors, especially between the WPC and LWAs.
3. Lack of community cohesion was another challenge. The issue of governance process and power dynamics influence the ability of local WPCs to function as intended.

Although the Water Point Committees were very clear on their roles, such as management, administration, operation, maintenance and repairs of the water points, there was evidence to prove that some of them were effectively carrying out their responsibilities. In many cases, there were only one or two members left on the

committee. This fact compromised sound governance principles. Most of the members who participated in the study were playing various roles in their committees as a result.

It is expected for the effective operation of the WPC that several meetings, monitoring, collecting and saving financial contributions from users, devising and enforcing rules (including rules around access and use) and undertaking or securing maintenance and repair work should be undertaken. However, the study concluded that the above activities were not always taking place at the sites. Thus, ineffective management contributed to some water points not functioning, the dissolving of the committees and mistrust of some of the committee members by the users.

Furthermore, the study has established that there are other critical factors that affect the capacity of the WPC in managing the system, such as leadership and community meetings.

As indicated above, a lack of leadership among the committee members might have contributed to the non-functioning of some water points. It is documented that water systems continue to work effectively, provided there is strong leadership.

The study also concluded that there were no meetings conducted by the WPC with the community or users. Meetings are critical to determining the concerns and needs of the users. It is also through community meetings that community members are informed about the expenditure of the money that they have contributed. Hence, regular meetings

are critical. They can be used to amplify the voices and influence some water users over others.

Although the community management model adopted by the Namibian government is lauded the best in some areas, it has failed to take account of important contextual factors such as the role of traditional leaders, levels of education of the committee members and gender in the management of water. Traditional leaders command respect in their communities, and they deal with conflicting situations that may arise between WPC and users as well as dealing with those in arrears of their payment.

In general, the study concluded that the management structure of the water committee created more dependency on the government, more especially for the replacement of parts. The Water Resource Management Act 13 of 2013, section 12 (although not commenced yet), makes a provision for the establishment of a water regulator. This independent regulatory body responsible for water regulation and pricing was not operational during the study, hence the water fees were different at different water scheme and points. This implies that the implementation was done without taking into account the stipulations in the legal documents, which, is a critical factor in a successful model.

The study concluded that community participation in the design and implementation of all phases of the rural water supply points are critical for the functionality and sustainability of the community water points. Cleaver and Whaley (2017:58) also recommend the establishment of community management during the design and implementation phase.

The involvement of community members from the initial stages as indicated for the majority of the communities in this study is also commendable because it instils the culture of ownership among users (Haysom 2006).

This study also established that there were no economic incentives and their enforcement as essential components to retain the committee members. It was concluded that many committees were not working properly due to the voluntary nature of the work and lack of control or monitoring from the government and lack of enough financial mobilisation from users to cover maintenance and replacement costs. Due to lack of incentives, many committee members resigned while some left the areas to go and look for employment, leaving the work of WPCs to rest on the shoulders of very few or without committee members.

There was no periodic election of the committee members. As a result, committees started to dissolve, ending up with some water points without committees.

There are no criteria required to become a committee member; the only requirement is that you should be a user of the particular water point where you are elected to serve. It is critical to set the requirement of the committee members to determine their capacity.

The principle of good governance requires periodic re-election of committees to be adhered to. It is an important democratic mechanism for avoiding capture by local elites and others. Lack of leadership and illiteracy among the committee members were cited as factors that led to the breakdown of many water points in the study area.

The training and capacity building for the committees in the study area was lacking. Another grave risk that needs urgent attention identified in the study is a lack of training and refresher courses for the committee members. Although initially all members were given basic training twenty years ago, many of the participants in the study found it important that refresher training was organised as many of them already forgot what they learned and more specifically, they want to learn new things in the market.

Training is helpful in providing information such as manuals, guidelines and other information materials (Verhoeven & Smits 2011:2). The key ingredient to the successful management of the community water point is capacity building. Irrespective of any management model, capacity building plays a crucial role in the improvement of water provision and services.

The study has established that training or professional support was limited or totally lacking in the study area. The study concluded that there was a lack of support in technical and administrative issues. Support in managing the money contributed by the users and maintaining the water points such as keeping it clean and functioning properly was found particularly critical.

However, more can be achieved if the following factors are considered in the training: holding regular meetings, collecting information, sensitising the community, working together to build a water point, making rules about the water points, working with the community, keeping records, taking care of money, working with the government, other organisations and water point committees, monitoring and evaluating activities and taking

care and maintaining the water point. These factors are critical for the effective management of the community water points.

The study concluded that despite the fact that the central government transferred the rural water supply and infrastructure to the regional government and the community have been assigned the role of managing the operation and maintenance of their water point, the process of full transfer from central government to regional government in order to enable the community to fulfil their roles is yet to be realized.

Community members have to travel long distances to look for services such as paying for water and buying spare parts if the water taps need minor maintenance. The transport cost to reach towns is more than the cost of water, which has caused many community members to abstain from paying for water.

Lastly, the study concluded that there is a lack of monitoring and evaluation by government officials, a lack of engagement between the community and the officials, as well as lack of information dissemination into the community. Support to the community consists of factors such as monitoring visits, training, maintenance and repairs.

The study also concluded that less support was provided to the community after the construction of the water point. Although committee members were trained to operate and maintain the water point, there was no regular monitoring or visits to see how they were performing. This argument is supported by sources and studies on the subject. The quality and sustainability of the rural water supply services depend on the support



provided to the community in the form of regular monitoring, technical assistance and retraining of service providers (Verhoeven & Smits 2011:1). Monitoring as part of the post-construction support involves testing the quality of water, checking accounts and general inspection of the water supply status. The participants in the study were concerned about the quantity and quality of water. Some water points were abandoned due to saline water and these forced communities to revert to the conventional ways, digging '*omifima*' for freshwater. If regular monitoring visits were done, technical advice or alternatives could be provided, such as pump operation and so forth. Hence, many boreholes were left to animals, since the water was not fit for human consumption. The breakdown and non-functionality of the water points and WPC can be attributed to the fact that little support was provided.

Furthermore, sources have cautioned that if post-construction support is not provided on time, problems that may seem small initially, like small leakages or errors in the books, may escalate into big problems. Hence, it is vital to identify and plan systematically when major maintenance is needed. The absence of post-construction support is often identified as a factor negatively affecting service delivery.

This was further supported by Verhoeven and Smits (2011), who indicate that the quality and sustainability of rural water supply services improves when community-based service providers receive regular support. The study established that solicited support (demanded support) was common in the study area and often support was not provided on time or not at all.

Some water points were reported closed for many years due to major maintenance required. It is, for this reason that post-construction support is critical to identify capital maintenance needs and assist in identifying sources of funding for such works before the situation deteriorated further and became too expensive to repair.

A few studies, amongst others the one by Verhoeven and Smits (2011:5) have confirmed the benefit of post-construction support. A comparison of communities receiving and not receiving post-construction support noted the high performance of the service providers who are regularly receiving support compared to the ones not receiving support. A study by Schweitzer and Mihelcic (2011) in the Dominican Republic concluded that there is high community participation at the systems visited more often.

Furthermore, in Chile and Honduras changes in performance and sustainability of rural water provision were observed since the establishment of post-construction mechanisms. In the sub-Saharan region, notable improvement is also noted in South Africa. Although post-construction support mechanisms are clearly articulated in the policy document, National Water Supply and Sanitation Policy (Republic of Namibia 2008a), solicited support should be provided instead. The blame for this was placed on a lack of resources which hindered the fulfilment of the mandates. The focus is more of a curative nature than on prevention. The study in Namibia by Verhoeven and Smits (2011:11) finds that, due to lack of a travel budget, support could often only be provided during a part of the month. A similar sentiment was echoed by the officials who participated in the study. This is against what they are supposed to do by law (Republic of Namibia 2013:15). It can be concluded that post-construction support is nothing but a formal mandate in Namibia.

Post-construction support is critical because it determines whether the users are happy with the service or not. The post-construction phase concerns the day-to-day operation of the community management governance arrangements.

### **7.3 Limitations**

This study was limited to the management of rural water supply and water point committees in the Ohangwena region. The opinions expressed in the study represent the views of the participants in the study, and they cannot be generalised to other regions. The participants in the study were Rural Water and Sanitation Officers, the Water Point User Associations and Water Point Committees. The information could be enriched if users were included in the study to provide their views on what they perceive as critical for effective management of the rural water supply.

### **7.4 Recommendations**

The following recommendations are drawn from analysing the responses on identified major critical factors and answers given by different stakeholders who participated in the study. Amongst others, they were asked about the critical success factors of community management of the rural water supply and their comments for rural water supply success.

The identified critical success factors for the effective management of the rural water supply included:

- leadership of the water management committees,

- community participation
- training and capacity building,
- periodic elections
- economic incentives to the committee members
- coordination and post-construction support by the government

A discussion on the recommendations for each of them hereby follows.

### **The leadership of the water management committee**

Considering the weak display of leadership authority in the region under study, it is recommended that, when electing members of the water point committee, critical assessment must be performed to elect people with strong leadership qualities for the effective and continuous functioning of the water point committee and water points. Leaders are needed who will be transparent and accountable to the users. There should be guidelines and criteria for electing committee members. It is thus recommended that the educational level, gender and age of the committee members be considered during the election of members.

### **Community participation**

Although community members were involved or participated in the initiation, installation and decision-making pertaining to their water points, increasing community participation

in the design, selection of technology type and implementation is critical for the sustainability of rural water supplies. It was established that some spare parts are not available in the Namibian market and therefore, it takes time to procure them from other countries like South Africa. If communities were fully involved in the water project cycle, for example selecting the technology type, it would be possible for them to identify the types that could be easier for them to maintain and what would be available in the local market. It will lead to an increased sense of ownership of the water points among the community members (Daemane 2015). They should be involved right from the start.

### **Harmonisation of the legal framework**

Harmonisation of the legal frameworks by the Ministry of Agriculture, Water and Forestry, is critical. There are conflicting provisions in the Water Resource Management Act. 11 of 2013 and the Communal Land Reform Act 5 of 2002. The study is recommending a speedy finalisation and promulgation of all regulations of the Water Resource Management 11 of 2013 as required by Section 134 and to ensure full compliance to the provisions in the Act with the law and legally binding. Regulations to implement the Act are currently under preparation. Once in operation, the Act repeals both, the Water resources Management Act 24 of 2004 (which had de facto never come into force) and the Water Act 54 of 1956 as a whole.

There is also conflict in the fundamental principles of the Water Supply and Sanitation Policy of 2008. The Ministry of Agriculture, Water and Forestry should develop specific

rules relating to the constitution and powers of the water point committees and appointment of the committee members.

### **Role delineation of stakeholders**

The delineation of roles of different stakeholders should be clear to avoid confusion and conflict that might arise between the actors. Water management regulations should also be made publicly available to address the misinterpretation of the Act. To date, the enforcement of community water management regulations is not a high priority. Therefore, the study recommends the enforcement of water management rules.

### **Periodic election of committee members**

Compliance with good governance principles should be encouraged and enforced. It is recommended, therefore, that regular elections of the committee members be held. New members should be elected every three or five years.

### **Training and capacity building**

Having skilled water management committees is critical for the effective and sustainable management of the water points. Taking into consideration the complex operations, processes and decisions, in addition to coordination challenges with multiple

stakeholders, requires a committee with diverse skills. Continuous training to improve the skills of the committee members is critical and highly recommended.

### **Economic incentives for the committee members**

Apart from setting minimum education and skills levels for the committee members, it is also critical to consider incentivising water committees as a strategy for attracting and retaining people with skills as volunteerism is unsustainable. Introducing social incentives for the committee members in a very creative way will encourage and retain volunteers.

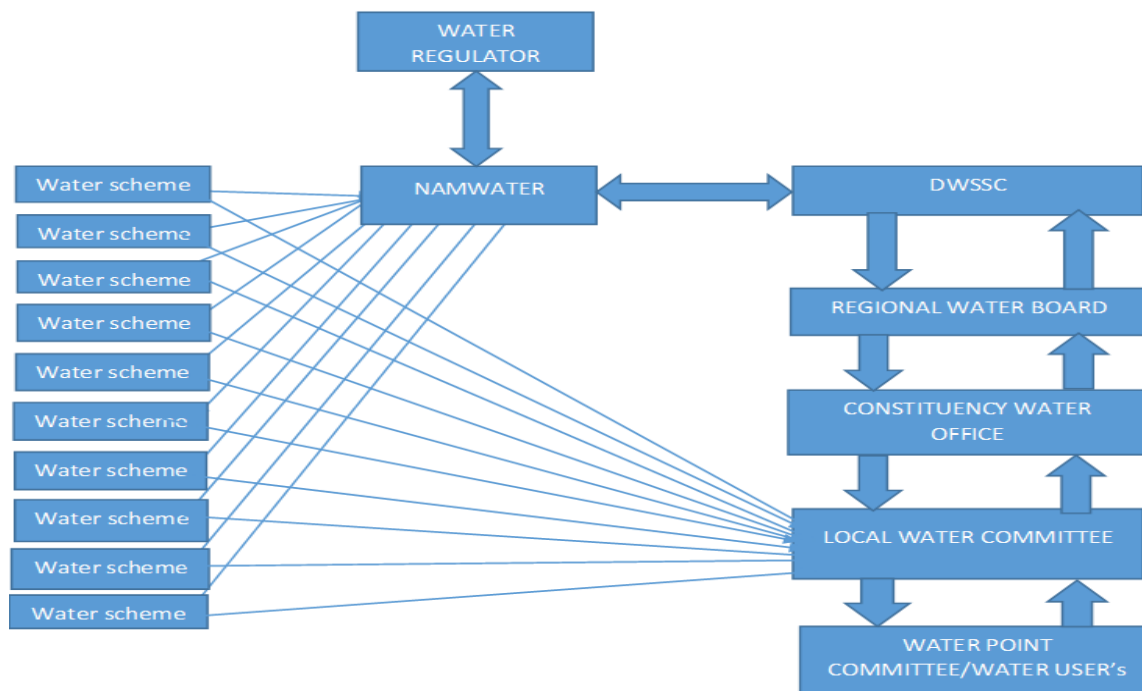
### **Coordination and post construction support**

It has emerged strongly from the study that coordination of and support to the community is the major issue in the study area. Hence, support in terms of resources, regular monitoring visits, maintenance, repairs and professional support are critical for the effective management of the water points.

Contextual differences need to be considered when developing regulations (it is not one size fits all), because they can hinder the effectiveness of water management institutions. Thus, rural water management rules should be flexible, taking into account the community contextual reality and that standard rules may not be applicable in all situations.

## 7.5 The Ohangwena Regional Water Board

The main objective of this study was to develop a rural water supply community management model for the Ohangwena region in Namibia. Therefore, based on the critical success factors identified in the study area, a model was developed which is anticipated to lead towards improved and sustainable water provision in the study area (see figure 7-12). The model consists of the Water Regulator, NamWater, and the Directorate of Rural Water Supply, Regional Water Board, Constituency Water Office, Local Water Committee and Water Point Committee and Water Users and ten (10) water schemes.



**Figure 7-12: A proposed regional rural water management model for Ohangwena in Namibia**



This model focuses on the decentralised management of the water service. Decentralisation in Namibia is a constitutional requirement as stipulated by the provision of Chapter 12 of the Namibian Constitution. Within the proposed model, community members, through their representatives on the water board, the local water committee and water point committees are expected to play an increasingly important role in the management of rural water supply. Hence, it is proposed that Board members are drawn from across all key sectors in the region and LWC for each water scheme, meaning that each individual community can be informed of the broader water supply issues and therefore understand how this impact on the services provided or costs to their respective community. This structure forms a good base for community consultations and efforts for effective management of water systems.

At the community level, a three-tier local management structure is proposed to lead the communities to handle both the management and governance responsibilities. These are the Regional Water Board, local water committee and water point committee. The water point committee constitutes the basic structure and is formed at each water point, whereas the LWC is constituted at the water scheme or constituency level. The Water Board has overall responsibility for the management of the water supply system and operates as the final decision-making body at the regional level. It is constituted from the LWC members and other key stakeholders in the region.

This model promotes transparency and accountability. The presence of LWC in each water scheme and a water point committee for each water point allows clear communication channels from users upwards to the Board and Water Office, and downwards back to the communities.

The Water Regulator of Namibia is a body established under the authority of the Water Resources Management Act 11 of 2013, Section 12. At the moment, the main functions of the regulatory body have been implemented under Section 7 of the Namibia Water Corporation Act 12 of 1997. Despite the provision of establishing the Water Regulator in the Water Resources Management Act 11 of 2013 (not yet commenced), the process to populate the new regulator started in 2016 and the new Water Regulator was inaugurated in 2017. In the proposed model, the Water Regulator determines the tariffs and charges or the maximum tariffs which may be levied by a water services provider or other suppliers of water, including the state, for the supply or distribution of water. Before the establishment and subsequent operationalisation of the Water Regulator in 2017, in terms of Section 7(a) of Act, 11 of 2013 it was assigned the responsibility to determine the levy on a full cost recovery basis for the water supplied. This has created a monopoly and conflict of interest. NamWater is playing two roles, one of a bulk water supplier and at the same time setting the water fees.

Hence, the functions of the Water Regulator amongst others are to control tariff increases, taking equitable access to the poor into account in accordance with the national water tariff policy, maintaining the financial viability of water service providers

and setting targets for efficiency improvements by service providers which cover the provision of services as well as the efficiency of service providers (Republic of Namibia 2009). The responsibility for determining the levy and approval thereof should exclusively be left to the Water Regulator.

In the proposed model, NamWater should only be responsible for the supply of water in bulk to customers, including the Directorate of Water Supply and Sanitation Coordination (DWSSC) in the Ministry of Agriculture Water and Forestry. According to the Namibia Water Corporation Act 12 of 1997, bulk water supply is defined as the wholesale supply of water, on a business-orientated basis, in large quantities, whether treated or untreated form, for any utilisation purpose to a customer for own use or subsequent supply by the customer to the consumer.

The Regional Councils through the Directorate of Rural Water Supply will buy water in bulk from NamWater and in turn supply water to the rural communities through the water schemes. By the same approach, Local Authorities buy water from NamWater and supply it to the town residents. It is the responsibility of the Directorate of Rural Water Supply and Sanitation Coordination (DWSSC) to ensure sustainable implementation of rural water supply for the rural communities on communal land.

The Regional Water Board (RWB) is responsible for the oversight over the entire water supply system in the region, whereas the Local Water Committee (LWC) is responsible for control at the local level. The Board and the LWC are made up of people with a mixture of skills, including the traditional leaders. The Board meets

periodically for governance and strategic oversight of the DWSSC and Water Office at the Constituency. In collaboration with the LWC, the Board members will undertake more frequent operation support and monitoring to the Water Office.

This model includes incentives to encourage performance. The Board and Committee members can be replaced in the case of poor performance. The separation of roles between service provision (the Water Office) and service governance (the Board and LWC) provides a reasonable basis for upward and downward accountability to the users.

The DWSSC at the regional level and Water Office at the constituency level provide advice and technical support to the Board and LWC. The Directorate and Water Office are made up of professionals (full-time officials) for the rural water supply who manage the system on a day-to-day basis from the regional and constituency offices. This model takes away the responsibilities of daily maintenance and repairs of the water facility from the water point committees. It has never been effective and resulted in many water points being dysfunctional. The model proposes that a Water Office at the constituency be equipped with professionals such as technicians, administrators, accountants and meter readers. This structure is almost similar to the structure you find in the urban areas. Furthermore, in order to retain the LWC members, the day-to-day management of the water scheme and water points should be the responsibility of the Water Office at the constituency and the community. At the same time, they monitor and provide support to the Local Water Committee, the water point committee and water users.

In order to fill the gap of lack of training and capacity building identified in the current model, this model proposes continuous up-skilling of the Board, LWC and Water Office through constant technical training, mentoring and technical assistance and refresher training, especially in the areas of general maintenance, stock and financial management.

In order to address the issue of cost recovery and financial sustainability of the water scheme and water points, the Directorate and Water Office are expected to produce annual statements of income and expenditures to the Board and propose a financial plan for the coming year within the approved water tariffs by the Water Regulator, which the Board reviews and approves.

It is proposed that the Water Office collect revenues at the water points which were previously managed by the water point committee. A financial penalty should be applied for late payments from the users and households with private connections.

The Water Point Committee is expected to facilitate rapid reporting of leaks by customers to the Water Office at the constituency. All public connections are metered, and distribution points are known to the Water Office, which could enable the office to monitor leakage throughout the water system. There will be an in-house technical capacity of personnel at the constituency level who are trained and equipped with tools to carry out major and minor repairs which will be carried out at the constituency level. It is recommended that people with community and good knowledge of the

construction and layout of the scheme should be considered for employment at the Water Office.

In order to avoid long downtime while purchasing repair materials from the market, the Water Office should maintain a stock of spare parts and keep on monitoring stock levels and procure new spare parts when they are running low, ensuring the availability of parts in case of breakdown.

With the proper implementation of the proposed model, it is expected to bring the following benefits:

- stimulating feedback from users to the Board and vice versa
- improving revenue collection or increasing community contributions towards the cost of infrastructure and water consumption
- ensuring availability of spare parts
- ensuring availability of skilled personnel for operation and maintenance
- facilitating a high sense of ownership by the community of the water scheme and water point
- ensuring clear communication channels
- rapid reporting of repairs
- regular monitoring
- ensuring transparency and accountability

## **7.6 Suggestions for further studies**

Based on the findings from this thesis, the study recommends a large scale study to be carried out to validate the application of the identified critical success factors for community management of the rural water supply system. Further studies are suggested to test the applicability of the developed model and determine its strengths and weaknesses.

Furthermore, the study recommends further review and study of the policy and legal framework necessary for achieving sustainability of rural water supplies. Additionally, research on areas requiring post-implementation support is also recommended as many rural water facilities begin to experience challenges a few years after construction and implementation.

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## **APPENDIX 1: Survey Questionnaire (Officials)**

Please read the enclosed letter before completing this form.

My name is Salom Nespect, a PhD student at the University of South Africa. I am conducting a research survey among a selected group of Water Point Committee members, Users and Officials in Ohangwena Region. The purpose of this study is to determine the critical successes factors of Community Management of Rural Water Supply in the Ohangwena Region. This study is intended for educational purposes and not for commercial purposes. Your individual responses and identity are confidential, and the questionnaire will only take about 30- 45 minutes to complete.

### **GENERAL RULES**

1. You have been invited to participate in this study because of your extensive experience about the topic under study.
2. You are kindly requested to answer the questions as honestly and completely as possible.
3. The questionnaire will take a maximum of 30-45 minutes to complete.
4. Participation is anonymous: You are not requested to disclose your identity. Your privacy will be respected.
5. No one will be able to connect you to the answers you give.
6. The information collected from you will be treated with strict confidentiality and used for research purposes only.

7. You have the right to withdraw your participation at any time. Hence, your participation is regarded as voluntarily.

8. You will not receive any payment or reward, financial or otherwise, and the study will not incur undue costs to you.

9. The survey data will be stored in a locked cupboard, and the data stored in a computer will be protected by the use of a password. The survey data will be destroyed when it is no longer of functional value (after five years).

10. A copy of the thesis will be available in the library at the Muckleneuk Ridge Campus of the University of South Africa (Unisa), Pretoria.

Please indicate your level of agreement or disagreement with each of these statements regarding the water points in your region/constituency. Place an “x” mark in the box of your answer.

Informed consent

Yes	No
1	2

Survey location

Office	Position

Who initiated the installation of the water points in the region?

The community themselves	Government	Others
1	2	3

Were you involved in any of the following decisions about the community Water Point?

Not involved in any	Technology type	Management arrangements	Financial arrangements	Do not know	Cannot remember
1	2	3	4	5	6

Were other officials involved in any of the following decisions about the community Water Point?

Not involved in any	Technology type	Management arrangements	Financial arrangements	Do not know	Cannot remember
1	2	3	4	5	6

Did the community contribute in kind to the installation? If yes, in what form?

No, did not contribute in kind	Labour	Local materials	Land	Other	Do not know	Cannot remember
1	2	3	4	5	6	7

Who is responsible for the day-to-day management of the Water Point?

Community	Water Point Committee	Government	Other	Do not know
1	2	3	4	5

Who is responsible for doing maintenance and minor repairs?

Community	Water Point Committee	Government	Other (specify.....)	Do not know
1	2	3	4	5

Who is responsible for doing major repairs?

Community	Water Point Committee	Government	Other	Do not know
-----------	-----------------------	------------	-------	-------------

1	2	3	4	5
---	---	---	---	---

Does the community contribute financially to the operation and maintenance of the Water Point?

No	Yes, pay monthly	Yes, occasionally pay, when repairs are needed	Not sure	Other
1	2	3	4	5

Where is the money for the Water Point kept?

In a bank	By the WPC member	Other	Do not know	Cannot remember
1	2	3	4	5

Does the Water Point Committee report back to the community on how the money is spent?

Yes, sometimes	Yes, always	Do not know	Cannot remember
1	2	3	4

How good do you think the financial management of the community water point is?

Very poor	Quite poor	Ok	Good	Excellent
1	2	3	4	5

What are the benefits of the community Water Point (if it is functioning?)

Less time spent fetching water	Less waterborne disease	Subjective well-being	Other
1	2	3	4

Are there any problems with the community water points?

No problems	Frequent breakdown	Water quantity	Cost	Distance	Time queuing	Quality	Others
1	2	3	4	5	6	7	8

How satisfied are you with the management arrangements for the community Water Points in the region?



Very dissatisfied	Slightly dissatisfied	Do not know	Quite satisfied	Very satisfied
1	2	3	4	5

How satisfied are you with the financial arrangements for the community Water Points in the region?

Very dissatisfied	Slightly dissatisfied	Do not know	Quite satisfied	Very satisfied
1	2	3	4	5

How satisfied are you with the overall performance of the community Water Points in the region?

Very dissatisfied	Slightly dissatisfied	Do not know	Quite satisfied	Very satisfied
1	2	3	4	5

Most manageable Water Point type?

Borehole	Pipeline	Electric pump	Solar	Other protected source
1	2	3	4	5

Water Point functionality?

Not functional	Partly functional	Functioning well
1	2	3

If not functioning, why is this?

--

Was a Water Point committee created when the Water Point was installed?

No, no committee was created	Yes, a new one was created	A committee already existed
1	2	3

Is the Water Point Committee active now?

No	Yes
1	2

How many members on the Water Point Committee?

--

Was there any training received by the Water Point Committee members?

No	Yes
1	2

If there was a Water Point committee before, but it is no longer active, why is this?

--

If there is no Water Point Committee, who is managing the Water Point?

--

Have you ever received any post-construction support from the installer?

No, none	Single monitoring visit	Multiple monitoring visits	Extra training	Maintenance-free	Maintenance had to pay	Repairs free	Repairs had to pay	Other	Do not know
1	2	3	4	5	6	7	8	9	

Thank you for sharing your thoughts with me.

## **APPENDIX 2: Survey Questionnaire (Committee Members)**

Please read the enclosed letter before completing this form.

My name is Salom Nespect, a PhD student at the University of South Africa. I am conducting a research survey among a selected group of Water Point Committee members, Users and Officials in Ohangwena Region. The purpose of this study is to determine the critical successes factors of Community Management of Rural Water Supply in the Ohangwena Region. This study is intended for educational purpose and not for commercial purpose. Your individual responses and identity are confidential, and the questionnaire will only take about 30 - 45 minutes to complete.

### **GENERAL RULES**

1. You have been invited to participate in this study because of your extensive experience about the topic under study.
2. You are kindly requested to answer the questions as honestly and completely as possible.
3. The questionnaire will take a maximum of 30-45 minutes to complete.
4. Participation is anonymous: You are not requested to disclose your identity. Your privacy will be respected.
5. No one will be able to connect you to the answers you give.
6. The information collected from you will be treated with strict confidentiality and used for research purposes only.

7. You have the right to withdraw your participation at any time. Hence, your participation is regarded as voluntarily.

8. You will not receive any payment or reward, financial or otherwise, and the study will not incur undue costs to you.

9. The survey data will be stored in a locked cupboard, and the data stored in a computer will be protected by the use of a password. The survey data will be destroyed when it is no longer of functional value (after five years).

10. A copy of the thesis will be available in the library at the Muckleneuk Ridge Campus of the University of South Africa (Unisa), Pretoria.

Please indicate your level of agreement or disagreement with each of these statements regarding the water points in your region/constituency. Place an “x” mark in the box of your answer.

Informed consent

Yes	No
1	2

Survey location

Water Point Name	
------------------	--

Who initiated the installation of the water points in the region?

The community themselves	Government	Others
1	2	3

Were you involved in any of the following decisions about this Water Point?

Not involved in any	Technology type	Management arrangements	Financial arrangements	Do not know	Cannot remember
1	2	3	4	5	6

Were other community members involved in any of the following decisions about the community Water Point?

Not involved in any	Technology type	Management arrangements	Financial arrangements	Do not know	Cannot remember
1	2	3	4	5	6

Did the community contribute in kind to the installation? If yes, in what form?

No, did not contribute in kind	Labour	Local materials	Land	Other	Do not know	Cannot remember
1	2	3	4	5	6	7

Who is responsible for the day-to-day management of the Water Point?

Community	Water Point Committee	Government	Other	Do not know
1	2	3	4	5

Who is responsible for doing maintenance and minor repairs?

Community	Water Point Committee	Government	Other (specify.....)	Do not know
1	2	3	4	5



Who is responsible for doing major repairs?

Community	Water Point Committee	Government	Other	Do not know
1	2	3	4	5

Does the community contribute financially to the operation and maintenance of the Water Point?

No	Yes, pay monthly	Yes, pay occasionally, when repairs are needed	Not sure	Other
1	2	3	4	5

Where is the money for the Water Point kept?

In a bank	By the WPC member	Other	Do not know	Cannot remember
1	2	3	4	5

Does the Water Point Committee report back to the community on how the money is spent?

Yes, sometimes	Yes, always	Do not know	Cannot remember
1	2	3	4

How good do you think the financial management of the community water point is?

Very poor	Quite poor	Ok	Good	Excellent
1	2	3	4	5

What are the benefits of the community Water Point (if it is functioning?)

Less time spent fetching water	Less waterborne disease	Subjective well-being	Other
1	2	3	4

Are there any problems with the community Water Points?

No problems	Frequent breakdown	Water quantity	Cost	Distance	Time queuing	Quality	Others
1	2	3	4	5	6	7	8

How satisfied are you with the management arrangements for the community Water Points in the region?

Very dissatisfied	Slightly dissatisfied	Do not know	Quite satisfied	Very satisfied
1	2	3	4	5

How satisfied are you with the financial arrangements for the community Water Points in the region?

Very dissatisfied	Slightly dissatisfied	Do not know	Quite satisfied	Very satisfied
1	2	3	4	5

How satisfied are you with the overall performance of the community Water Points?

Very dissatisfied	Slightly dissatisfied	Do not know	Quite satisfied	Very satisfied
1	2	3	4	5

Water Point type?

Borehole – Hand pump	Pipeline	Electric pump	Solar panels	Other protected sources
1	2	3	4	5

Water Point functionality?

Not functional	Partly functional	Functioning well
1	2	3

If not functioning, why is this?

--

Was a Water Point committee created when the Water Point was installed?

No, no committee was created	Yes, a new one was created	A committee already existed
1	2	3

Is the Water Point Committee active now?

No	Yes
1	2

How many members on the Water Point Committee?

Was there any training received by the Water Point Committee members?

No	Yes
1	2

If there was a Water Point committee before, but it is no longer active, why is this?

If there is no Water Point Committee, who is managing the Water Point?

Have you ever received any post-construction support from the installer?

No, non e	Single monitori ng visit	Multiple monitori ng visits	Extra trainin g	Mainten ance free	Maintenan ce had to pay	Repair s free	Repai rs had to pay	Oth er	Do not kno w
1	2	3	4	5	6	7	8	9	10

Thank you for sharing your thoughts with me.

## **APPENDIX 3: Interview Guide**

### **INTERVIEW GUIDE**

Introduce self and research, and secure informed consent (go through Participant Informed Consent Sheet and Consent Form).

Interview to be conducted in English.

### **GENERAL RULES**

1. You have been invited to participate in this study because of your extensive experience about the topic under study.
2. You are kindly requested to answer the questions as honestly and completely as possible.
3. The interview will last a maximum of 30 minutes.
4. Participation is anonymous: You are not requested to disclose your identity. Your privacy will be respected.
5. No one will be able to connect you to the answers you give.
6. The information collected from you will be treated with strict confidentiality and used for research purposes only.
7. You have the right to withdraw your participation at any time. Hence, your participation is regarded as voluntarily.

8. You will not receive any payment or reward, financial or otherwise, and the study will not incur undue costs to you.

9. The data will be stored in a locked cupboard and the data stored in a computer will be protected by the use of a password. The survey data will be destroyed when it is no longer of functional value (after five years).

10. A copy of the thesis will be available in the library at the Muckleneuk Ridge Campus of the University of South Africa (Unisa), Pretoria.

Interview to be voice recorded if consent is given.

Date:.....

Interview form attached? Yes/No

#### Guide Questions

Could you tell me who you are and what work you do/what involvement you have in the water supply sector?

My research is looking at the question of community management of rural water supply: specifically, why some water points keep working for a long time, while others stop working quite quickly. Do not feel that there is a problem with the management of water points in this constituency and if so why? (Prompt for examples)

What do you think are the critical factors for effective management of this water point/rural water supply in the Ohangwena Region?



I am particularly interested in a number of issues: water point installation, management, financing, maintenance, and coordination and support mechanisms.

Regarding water point installation:

Who initiated/provided the installation of the water point? (prompt for more)

What do you think could be done to improve the process next time? Who else do you think needs to be involved? Who needs to do what differently? What are the barriers?

Regarding the management of rural water supply/water point

How is this organised at the moment? (prompt for more)

How effective is the current approach?

What do you think could be done to improve it? Who needs to do what differently? What are the barriers?

Regarding financing of maintenance:

How is this organised at the moment and why?

How effective is the current approach?

What do you think could be done to improve it? Who needs to do what differently? What are the barriers? What would it cost?

Regarding coordination and support mechanisms:

How is this organised in Ohangwena region/water point and why?

How effective is the current approach?

What do you think could be done to improve it? Who needs to do what differently? What are the barriers? What would it cost?

Finally, what do you think is the most critical thing that could be done to improve the management, financing, coordination, maintenance and support mechanism of the rural water supply/water point in this region? Who should be responsible for it?

Thanks so much for participating in this research!!

## APPENDIX 4: Permission letter to conduct academic research



REPUBLIC OF NAMIBIA

MINISTRY OF AGRICULTURE, WATER AND FORESTRY

Tel.: (061) 2087643  
Fax: (061) 221733

Office of the Permanent Secretary  
Government Office Park  
Private Bag 13184  
WINDHOEK

Enquiries: Ms.T.L. Nantanga  
Tel: 061 2087339  
Fax: 061 2087304  
Email: [Theopoline.Nantanga@mafw.gov.na](mailto:Theopoline.Nantanga@mafw.gov.na)

08 January 2018

Mr. N.Salom  
P.O. Box 80042  
Ongwediva, Namibia

Dear Mr Salom,

**RE: Permission to conduct an academic research at Ohangwena Region through the Directorate of Water Supply and Sanitation Coordination (DWSSC).**

This letter acknowledges receipt of your letter dated 30<sup>th</sup> October 2017, requesting permission to conduct a research. The Ministry of Agriculture, Water and Forestry (MAWF) does not have any objection for you to conduct the study on Water Point Committee Management in Ohangwena region.

While the MAWF highly appreciate your chosen research topic, we kindly request you to submit a short research proposal note. The research proposal should include among others the followings:

- ❖ Problem statement;
- ❖ Objective and scope of the research and
- ❖ Most of all the research methodology to be applied.

Meanwhile, we thank you for showing interest in conducting a research in the area of water supply sector and looking forward to receive a copy of the final report.

Finally, for further assistance, please do not hesitate to contact the DWSSC office in Ohangwena region.

Please, Mr. Salom, accept the assurances of my highest consideration.


Percy W. Miska

PERMANENT SECRETARY

Cc: Mr. I. Hambudi-CAO Ohangwena Region

All official correspondence must be addressed to the Permanent Secretary

## APPENDIX 5: Ethical Clearance approvals



UNISA  
university  
of south africa

DEPARTMENT: PUBLIC ADMINISTRATION AND MANAGEMENT  
RESEARCH ETHICS REVIEW COMMITTEE

Date: 9 April 2018

Ref #: PAM/2018/010 (Salom)  
Name of applicant: Mr NB Salom  
Student#: 32918178

Dear Mr Salom

**Decision: Ethics Clearance Approval 5 April 2018 to 4 April 2021**

**Name:** Mr NB Salom, student#: 32918178, [bsalom@nipam.na](mailto:bsalom@nipam.na), tel: 00264 612964755  
[Supervisor: Prof P Khumalo, tel: 012 429-3779, [khumap1@unisa.ac.za](mailto:khumap1@unisa.ac.za)]  
**Research project** 'Critical success factors for the community management of rural water supply in Ohangwena Region: Namibia' **Qualification:** PhD (Public Administration)


Thank you for the application for **research ethics clearance** by the Department: Public Administration and Management: Research Ethics Review Committee, for the above mentioned research. Ethics approval is granted for the period **5 April 2018 to 4 April 2021**. If necessary to complete the research, you may apply for an **extension** of the period.

The decision will be tabled at the next College RERC meeting for notification/ratification.

**For full approval:** The application was **expedited and reviewed** in compliance with the *Unisa Policy on Research Ethics* and the *Standard Operating Procedure on Research Ethics Risk Assessment* by the RERC on 22 March 2018.

The proposed research may now commence with the proviso that:


- 1) The researcher will ensure that the research project adheres to the values and principles expressed in the Unisa Policy on Research Ethics.
- 2) Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to this Ethics Review Committee.
- 3) The researcher will conduct the study according to the methods and procedures set out in the approved application.



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Pretorius Street, Muckleneuk Ridge, City of Tshwane  
PO Box 392 UNISA 0003 South Africa  
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150

- 4) Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.
- 5) The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study, among others, the **Protection of Personal Information Act 4/2013**; **Children's Act 38/2005** and **National Health Act 61/2003**.
- 6) Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
- 7) Field work activities **may not** continue after the expiry date given. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Kind regards

  
**Ms C Alers**  
Chairperson:  
Research Ethics Review Committee  
[alersc@unisa.ac.za](mailto:alersc@unisa.ac.za)

  
**Prof MT Mogale**  
Executive Dean: CEMS